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AUGUST, 1883.

AN ARTICLE entitled "Selection in Grain Growing," by JAMES CHEESMAN, appeared in the last number of the *Popular Science Monthly*, which is full of interest to all those engaged in the production of new varieties of plants, or in the improvement of old ones. This article is based on a continuous work which can no longer be called a series of experiments, that has been performed for a term of years by Major HALLETT, F. L. S., of Brighton, England. Major HALLETT's object has been to improve certain varieties of Wheat.

"In 1861 he planted ten grains of Wheat, from a variety known there as Bellevue Talavera Wheat, which up to that time had been sown as a spring Wheat, and was declared to be quite incapable of withstanding the frost of winter. Nine of the ten plants from these grains were killed by the severe frost, but the other plant, although from the same ear, remained as healthy and vigorous as any of the winter varieties of Wheat by their side. From this surviving plant seed has been selected and grown year after year as a winter Wheat. Close observation shows that in the cereals, as throughout nature, no two plants or grains are exactly alike in productive power, and, hence, that of any two or greater number of grains or plants one is always superior to all the others, al-

though the superiority can only be ascertained by actual field tests. It may consist in several particular characteristics, as power to withstand frost, prolificness, size and character of ear, size, form, quality and weight of grain, length and stiffness of straw, powers of tillering, rapidity of growth, and many others."

Without introducing many of the particulars mentioned by the writer, we offer only the main points.

"The next year the grains from the largest ear of the finest plant of the previous year were planted singly, twelve inches apart, in a continuous row; one of them produced a plant consisting of fifty-two ears, those next to and on either side of it of twenty-nine and seventeen ears, respectively, and the finest of all the other plants consisted of only forty ears.

"The following are the chief points of the standard in the order of their importance, but all have to be duly considered: 1, Hardiness of constitution; 2, Trueness of type; 3, Quality of sample; 4, Productiveness; 5, Power of tillering; 6, Stiffness and toughness of straw; 7, Earliness of ripening.

"The system of selection here pursued is as follows: a grain produces a plant consisting of many ears. Then are planted the grains from these ears in such a manner that each ear occupies a row by itself, each of its grains occupying

a hole in the row, the holes being twelve inches apart each way. At harvest, after the most careful study and comparison of the plants from all these grains, the finest one is selected, which is proof that its parent-grain was the best of all, under the peculiar circumstances of that season. This process is repeated annually, starting every year with the proved best grain, although the verification of this superiority is not obtained until the following harvest."

By the method of selection now described, a head or ear of Wheat in five years was increased from four and three-eighth inches to eight and three-fourth inches, or exactly doubled in length. The number of grains was increased from forty-seven on the original ear to one hundred and twenty-three on the finest ear at the end of that time. The number of ears on the original plant is not given, but the second year the finest plant had ten ears, the third year twenty-two, the fourth year thirty-nine, and the fifth fifty-two ears. Other instances are given; in one case an original ear contained forty-five grains, and an improved ear produced from it, one hundred and twenty-three grains. Several other examples are mentioned, all of which exhibit a great increase.

Our writer proceeds: "Very close observation during many years led to the discovery that the variations in the cereals which nature presents to us are not only hereditary, but that they proceed upon a fixed principle, and from them has been deduced the following law of development of cereals:

"1. Every fully developed plant, whether of Wheat, Oats or Barley, presents an ear superior in productive power to any of the rest on that plant.

"2. Every such plant contains one grain which, upon trial, proves more productive than any other.

"3. The best grain in a given plant is found in its best ear.

"4. The superior vigor of the grain is transmissible in different degrees to its progeny.

"5. By repeated careful selection the superiority is accumulated.

"6. The improvement which is at first rapid, gradually, after a long series of years, is diminished in amount, and eventually so far arrested that practically

a limit to improvement in the desired quality is reached.

"7. By still continuing to select, the improvement is maintained, and practically a fixed type of it is the result."

This statement of the development of cereals is in accordance with what is known of the development, or amelioration, of all plants, but what we have particularly to notice is the second paragraph, or that in regard to every plant containing one grain more productive than any other. That this should be so would be a most reasonable inference, that it really is so the experiments mentioned have conclusively proved, and for this increment of knowledge Major HALLETT should have the thanks and esteem of the public. Those in this country who have interested themselves in breeding some particular strain of Indian Corn have constantly selected the finest ears, and with excellent results; but now we know that to produce the greatest results we must no longer be content to select the best ears, but must use only the best single grain. In taking this course there will be more work, but there will also be a better recompense. By using the whole ear, or the most of it to propagate from, and year by year selecting the finest ears, we may breed some quality or qualities in a high average condition, but not up to their maximum state, and this is only possible by employing the best single grain.

The principle of selection and breeding adopted and verified in these experiments with reference to cereals, may almost without hesitation be given a general application. By the ordinary method of seedsmen the amelioration of plants is effected to an average degree, but we desire it to the maximum; propagation from the single grain promises this end. Our garden vegetables are not all what we should wish them to be; their improvement has been made very slowly, and most varieties have proved to be annoyingly unstable. Evidently this is due to the infiltration through stock of many streams of different qualities. If we will commence to breed varieties of esculent vegetables on the principles Major H. employed with Wheat, there can be no reasonable doubt that results as satisfactory will be achieved. In the case of the Pea, or the Bean, or other plants with

comparatively few seeds, the labor involved will be about the same as the Wheat ; in that of the Cabbage, or Turnip, or other plants which produce seeds abundantly, it will apparently be much greater, but no doubt experience will show how it may be successfully accomplished. Already we have visions of larger, sweeter, crisper Radishes, of larger, sweeter Onions that will keep the year round, of Carrots that shall be more grateful to the palate and that will yield better crops, of a Beet that will give us cheaper sugar than Sorghum or the Sugar Cane.

In the same manner, no doubt, important ameliorations may be made with ornamental annual flowering plants.

With the Potato we do not have the difficulty to contend with that we do in the case of those esculent vegetables raised from seed, for every substantial gain made in a Potato tuber is held by propagating from its eyes, all of which are equal in constitutional qualities to the parent ; this is also true in regard to varieties of fruits, and of all plants propagated by buds, grafts, layers and similar methods.

We need not now consider the effect of cross-fertilization in modifying the constitution of plants, for however potent this influence may be it must be subordinate to selection ; a stream cannot rise higher than its source. In the case of most of our cultivated plants which for years, either intentionally or unintentionally, have been cross-fertilized we may safely conclude that propagation by the best single grains promises the highest possible results in the production of varieties, and attainable in comparatively short periods of time.

A WHITE CLEMATIS.

As a companion for Clematis Jackmanii, the flowers contrasting in color, there is no better variety than that shown in our colored plate, *C. lanuginosa candida*. When the blooms first open they have a sort of lavender tinge, but this gradually fades away and the second day they are a good white, though not so pure as that of many other flowers. The flowers here shown are only of medium size, taken from a young plant. The plant is a vigorous grower, sufficiently

hardy, and not at all difficult to raise, provided it is given a warm, dry, rich soil ; in this matter it is probably somewhat more exacting than *C. Jackmanii*, but demanding no better conditions than every good garden can supply, and we believe that few of our readers do not understand and avail themselves of the advantage of a dry soil for garden purposes.

In setting plants of this character in the garden it is usually desirable to place them near the house, and it so happens that frequently the spot fixed upon is the poorest on all the ground ; it may be near the foundation wall, and possibly mixed with pieces of brick or stone, or it may be that poor soil has been filled in there to raise the grade, and so it is altogether unsuitable without a good preparation. One of the great mistakes in transplanting a perennial plant is caused by not considering that here the roots will have to find nourishment and space to grow for a long time, consequently demanding mellow and rich ground for at least a considerable space. It is not a question how small the hole may be made to receive the plant, but how well the place may be prepared to give appropriate lodgment to a thing of life and growth.

If the soil is not all right it should be made so by taking out the poor and bringing in some that is fine and rich. A prepared space a yard in diameter is not too great, nor a foot in depth too much for each plant. The fine soil just under an old sod when mixed with some old, well-rotted stable manure makes a material as good as can be desired, and in it the roots of a plant will revel, and make the plant itself leap for joy. If we expect our cultivated plants to supply us abundantly with their beauty we must supply their needs with as much care as we do our domesticated animals.

The plants of the Clematis can be set either in the fall or in the spring ; if in the fall they should be well protected with a covering of leaves during the winter. In the coldest part of the country it will be well to afford a protection of leaves to this particular variety of Clematis every winter, first bringing the stems down and coiling them about on the ground. The additional amount of bloom afforded by this means will repay the trouble.

SPRING BULBS.

After our long winter, when, for four or six months according to the season, no vegetation has shown life, save the Pines and the Spruces and their congeners, we hail with delight the first green blades that shoot through the soil. On

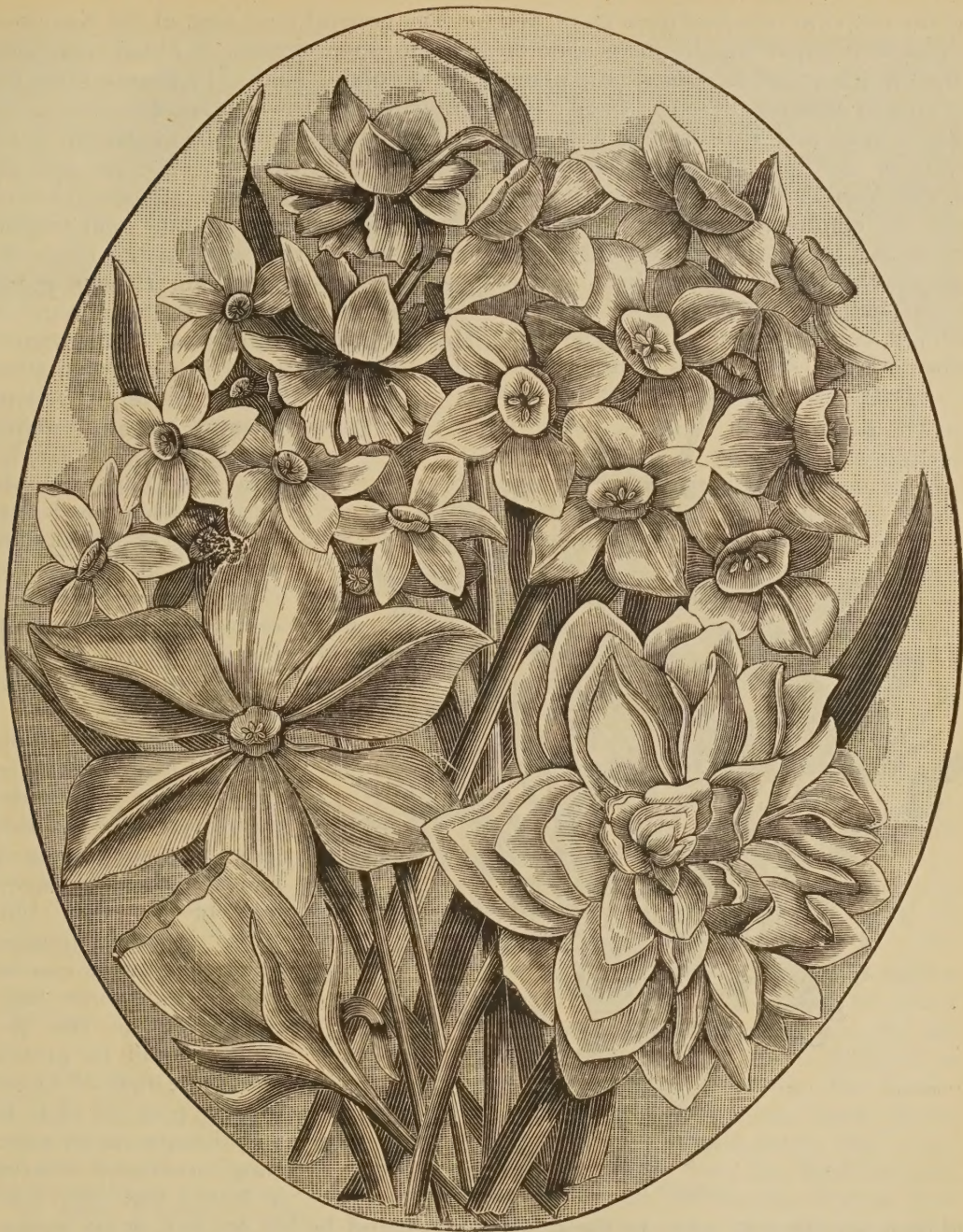
bulbs in the ground in the same place from year to year is sure to result in diminished blooms until the semblance to their former selves is lost. The Tulip is best suited with a spot that is well-drained and fully exposed to the sun, and a soil that is a fresh, substantial, friable mold containing some sand. It should



SINGLE EARLY AND DOUBLE TULIPS.

this account some of our little, hardy, native plants that give their blossoms as soon as we have a few warm days, deserve careful culture, and it is a pleasure to know that in many places they are garden treasures. The Snowdrop, and the Crocus, and the blue Periwinkle, how quickly they rejoice in the returning warmth! For a mass of bright, rich color in the garden in early spring the Tulip is our main dependence, and it is worthy of all the attention its culture demands. For the best results annual re-planting is necessary. To leave the

be enriched by the addition of plenty of old cow manure well dug in. In forming a bed the surface should be raised several inches in the central part in order to prevent water standing on it in the winter season. The bulbs can be set about three inches in depth and from four to six inches apart, giving the taller varieties the greater distance. The latter part of September and through the month of October is the best time for planting. Before hard freezing occurs it is best to give the bed a light covering of litter or evergreen boughs, or leaves, which are



GROUP OF NARCISSUS.

better than anything else. The covering should be removed early in spring, otherwise the tendency of the plants is to grow spindling. In very early spring, when we are apt to be visited at night by severe cold, the ground freezing deep, it is best to be watchful, and when severe freezing is probable to give some protection again, merely for the night, removing the covering in the morning. It is not uncommon when the beds are wholly exposed at such times for the flower buds to be checked by the frost.

After the blooming season the beds occupied by Tulips are usually wanted for other plants before the bulbs are fully mature, which is shown by the yellow and withering leaves. The question arises, how shall we manage with the Tulips? The best to be done in these circumstances is to set plants in the spaces between the bulbs, which are allowed to remain until ripe, and are then lifted and placed in a dry, shady, airy corner until they have parted with some of their moisture, then they can have the dirt

and the old skin removed from them, and be placed in paper bags, or in dry sand on a shelf in the cellar, to remain until planting time in autumn.

For winter and early spring flowering in pots in the house what are known as the Duc Van Thol and Single Early varieties are employed. These come into bloom in the shortest time, and are of a great variety of bright colors. Three or four bulbs should be placed in a six-inch pot, covering them with two or three inches of soil. As soon as potted, water

The general treatment of the Narcissus in the open ground is about the same as that of the Tulip. By reason of its fragrance, as well as its many beautiful varieties, and its free-blooming, it is quite desirable for house culture. The Jonquils are the most sweet-scented, and are favorites for potting on that account. Our engraving shows, at the base, at the right, the double Narcissus, Sulphur Crown, and at the left a flower of Bulbocodium, or Hoop Petticoat Narcissus. Immediately above the last named is a representation

of the variety *Poeticus ornatus*; again, above this is shown the single-flowered Paper White variety, while over that are some of the Double Roman; at the upper right hand part the flowers with the little cups in the centers are those of the handsome *Polyanthus Narcissus*.

In potting Narcissus bulbs it is best to keep the neck or top of the bulb even with the surface of the soil; three or four bulbs can occupy a five or six inch pot. With proper management the flowers can be had by the winter holidays. To do this the bulbs should be potted about the first of October, the pots set away in a cold-frame, or in some snug corner, and covered at least a foot deep with



GROUP OF IXIAS.

and then set the pots away in the cellar and cover them by throwing three or four inches of soil over them in order to prevent their drying out rapidly. After six or eight weeks they will have probably made plenty of roots, and then can be taken up and exposed to the light.

The Duc Van Thol, Tournesol and Single Early varieties are best to plant in beds, as they soonest mature.

The Late Show Tulips require a season somewhat longer, but they are of great beauty, both in form and colors, and are the most prized by Tulip fanciers.

leaves, and be left for five or six weeks, when some of them will be started, and they can be removed to the house, but not into a strong heat; a temperature of 60° will produce better flowers than a higher one. The Roman and the Paper White Narcissus, and the Jonquils should be selected for forcing. Narcissus bulbs flower quite freely in vases of water.

The varieties of *Ixia* are very beautiful and interesting. The bulbs are called half-hardy, and in this climate are only raised in the house, treating them the same as Narcissus. The flowers are from one to two inches in diameter and of many colors.



EDELWEISS.

Hast seen the flower which tourists prize,
The Alpine Rose—the Edelweiss?
It blooms amid perpetual snows,
In nooks no mountain hunter knows.
Shy, in its sweet, mysterious grace,
It loves to hide its chaste, white face,
And brave the tourist who can dare,
This strange, white Mountain Rose to wear.

For ere he plucks it, he must brave
The avalanche's snowy wave;
Must scale the heights which wild goats mock,
Stayed by his sturdy alpen-stock.
Above—the glare of ice and snow;
The treacherous abyss—below;
One misstep, and all hope is gone,
He knows it, but he clammers on
All undismayed; he'll gladly dare
All dangers for a prize so rare.

Its charm is this; few have the power,
The nerve, the skill, to pluck the flower;
The steady hand, and foot, and eye,
The will to garner or to die,
The purpose firm, which can not fail,
Courage, which will not, can not quail,
These, the high qualities, which those
Must have, who pluck the Alpine Rose.

* * * * *

Far on the rugged path of life,
Beyond the snows of deadly strife,
Beyond the vales of careless ease,
Where pleasure's perfumes scent the breeze,
Beyond the crowding and the care,
Of countless throngs who linger there,
Close nestled up against the skies,
The goal of our ambition lies.

And he who reaches it, be sure,
Has had the courage to endure;
Has passed by many alluring flowers
Which smile away life's summer hours;
Has looked beyond the narrow bound
Which hedges common mortals round;
Has dared to win what others sought;
Has earned what never could be bought.

Ah! who would life's best prizes win
Must look aloft; must bear the din,
The strife, the scars, the dangers; all
The snaring sweets set to enthrall,
With soul serene, and bearing high,
With purpose now to do or die;
So prove his power to pluck life's prize,
His own heart's cherished Edelweiss.

—DART FAIRTHORNE.

FLOWERS IN MIDDLE FLORIDA.

Florida has been well named "The Land of Flowers." Its wonderful climate seems to be especially adapted to the growth of every blooming tree and shrub and plant, from the hardy natives of colder latitudes to the most tender and delicate blooms found elsewhere only in conservatories and hot-houses. From majestic Century Plant, which blooms but once in its long life of about twenty-five years, to the tiny violet, there is a wealth of perfection in color and perfume throughout the greater portion of the year, that would make the fortune of a florist who could possess them in sufficient proximity to a good market.

Among the blooming trees and shrubs which adorn the woods and fields of middle Florida, without the aid of cultivation, are the stately Magnolia, whose powerful fragrance fills the air for miles in the early spring; the Red Bay, with its magnolia-like flowers, more delicate in perfume than the Magnolia; the Snow-drop tree, with drooping, pure white blossoms; the Sparkle-berry, the Dogwood, the Clove tree, the Red-bud, the wild Crab-apple, the Swamp Willow, and and a hundred other of greater or less beauty.

The wild vines, too, are a brilliant feature of every hedge-row and thicket. Earliest and sweetest is the Yellow Jasmine, with its golden bells, filling the air with the most delicious fragrance. The Woodbine, with crimson clusters; the Virginia Trumpet Creeper; the family of Honeysuckles; the Cherokee Rose and many others, known and unknown, grow, and clamber, and thrive along the roadsides and in the depths of the forest, with a luxuriance seen nowhere else in America.

The numerous varieties of the Water

Lily inhabit every pond and lagoon, all more or less beautiful; many remarkably and peculiarly fragrant, and many so rare as to be found wild in no other locality on the continent.

The smaller wild flowers of the wood and field are almost endless in variety and beautiful coloring. At one of the now famous spring fairs of the Middle Florida Agricultural and Mechanical Association, recently held at Tallahassee, a fair devotee of Flora exhibited a collection of wild flowers arranged in a handsome bouquet, and containing fifty-five distinct varieties.

The cultivated flowers, as may well be imagined, are almost infinite in variety and incomparable in perfection. The *Camellia Japonica* is apparently at home here, and attains, with age, an immense size. Several in Tallahassee are from ten to sixteen feet in height, and Quincy, in Gadsden, the adjoining County, boasts of two which are nearly or quite twenty-five feet in height. Roses bloom the year round, and the bushes become trees; one here measuring, at the height of four feet, twelve inches in circumference. Eight different varieties of the Jessamine are found here, and the Cactus family flourishes astonishingly. It is too great a task and would require too much space to name more, suffice it to say, that probably in no other region on this continent can be found or cultivated in the air so great a variety, or such magnificent specimens of the several kinds as may be found in the numerous flower gardens and private collections of the middle Florida towns. The ladies of Tallahassee especially excel in the gentle art, and as there is but one greenhouse for trade purposes, and not a single professional florist in all middle Florida, the name the Capital City, has fairly acquired, as "The Flower City of the Land of Flowers," is a distinction of no common significance. A well educated and competent florist, able to extend his labors into every department of propagation, would find here a field fairly teeming with subjects for interesting occupation, and through a connection with some leading establishment in the North, might make his work, in a very short time and with a very inconsiderable outlay, practically profitable to an astonishing degree.—C.

BEST FLOWER FOR THE HOUSE.

I very often am asked this question, "What is the best flower for the house?" And, while it is a difficult matter to answer this question satisfactorily when we have so many fine plants for house culture, I generally give preference to the Geranium. My reasons for this preference are good ones. In the first place, the Geranium is not one of the "particular" plants. It will grow well in almost any kind of soil. It will stand drouth, and dry air, and dust. In the second place, it blooms profusely for a long season. In the third place, it is a flower of great beauty, and no other plant has such variety of color and shades of color. You can have scarlet, pink, white, salmon, orange-scarlet, and the most intense violet-crimson flowers, and these, double or single, as you may prefer. And another good thing to be said for the Geranium is, it is never troubled with insects. The aphids, the scale-bug and the red spider will not take up their habitations among them.

Though the Geraniums will do well, as I have said, in almost any soil, it will do enough better in a soil particularly adapted to its likes to make it worth the while to obtain the proper materials for a compost expressly for it, especially if you intend to grow several varieties. I have found the best soil to be one composed of two parts turfy loam dug from under the sods in old pastures, one part thoroughly rotted manure, and one part sand. I mix these ingredients thoroughly, and have a soil rich and light, which the roots of the plant will penetrate easily, and one which will not retain too much water.

In potting Geraniums, you cannot take too much pains in providing good drainage. The Geranium does not like a soil that retains a great deal of water, and most soils will, unless the drainage of the pot is good. Such a soil as the one I have advised will not, on account of the sand in it, but not many persons will be likely to take the trouble to make such a compost, and those who do not must depend on draining their pots well, to avoid the danger of too great a supply of water. Put in an inch or two of broken brick or pottery in the bottom of the pot. Over this, if you happen to have it handy, lay a small quantity of moss, or cocoa fibre, to

prevent the soil from washing down among the brick, or whatever is used to fill the bottom of the pot with. More persons fail to grow plants well from a neglect of proper drainage than from any other cause. They seem to regard it as unnecessary and as a "whim," and keep on giving a sickly plant water, while water is what it is dying of. I have known plants to recover from sickness by withholding water until the soil became quite dry.

If you want your Geraniums to give a large amount of flowers, do not give them too large pots to grow in. In large pots they will grow luxuriantly, and become fine plants, but they will have more leaves than flowers. Six and eight inch pots are generally large enough. In these they will become root-bound after a while. Then I shake out the soil and give a fresh one, but I generally cut back the top some when repotting, and put the plant back in the same pot.

Some claim that young plants are best. I do not agree with them. Plants two and three years old give me better satisfaction than young plants. Young plants are more vigorous, but old ones are better bloomers. In the window, near where I write, stands a plant of the Master Christine variety which is three years old. It has fifteen bunches of flowers, and as many clusters of buds, and I expect it to be in bloom the entire season. To keep it from exhausting itself, I gave it stimulating food at least once a week. It seems to like best water dipped up in a corner of the barnyard after a drenching shower. A tablespoonful of ammonia in a pailful of water makes Geraniums grow healthily in spring.

For winter use the single ones are best. The doubles will not bloom later than November. The double varieties are fine for summer use, though I do not like them as well as I do the single ones.

The best varieties I have ever grown are the following: Master Christine, beautiful bright rose color, the two upper petals marked at the base with white. This variety is an almost constant bloomer, and bears its flowers in great profusion. Fritz, a large, well shaped salmon, with distinct, white edge, almost always in bloom. Herald of Spring, a bright vermilion-scarlet, with very large flowers, perfect in shape and characteris-

tics of constant and profuse bloom. Mrs. James Vick, beautiful salmon variety, marked with white. Pauline Lucca, the best of all whites. Wm. Cullen Bryant, dark, velvety scarlet, of extra size, with broad petals, which over-lap each other, making a round, Pansy-like flower. Mrs. Moore, white, with large, rosy spot in the center.

I do not allow the Geraniums intended for winter flowering to bloom during the summer. I give just enough water to keep them growing healthily, but do not try to force them. Encourage them to "take it easy" until October, and reserve all their energy for the winter months. I never put those I want for winter in the open ground during the summer. If this is done, they will send out many strong roots which must be broken off when the plant is potted in the fall, and by this means the plant is damaged more than you will be likely to think at the very season when it should be at its best.

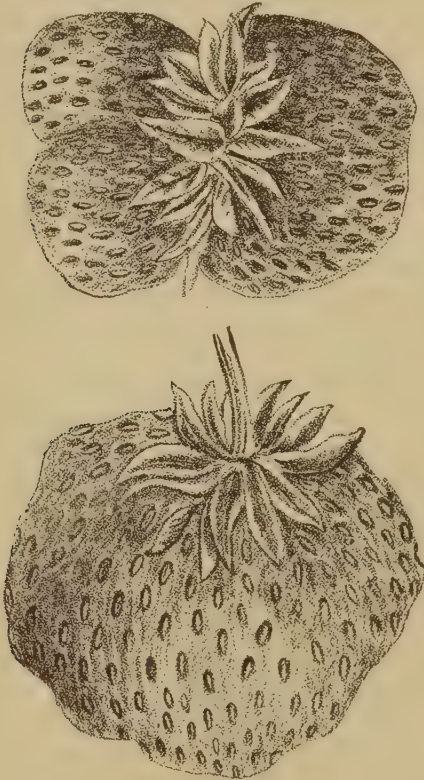
In training Geraniums, I cut off the tops of young plants, encouraging them to send up several branches from the base of the plant. The Geranium will make a scraggly, awkward plant almost always if left to itself, but judicious pruning will make it grow into good shape. If grown as a standard, the stem should be tied to a stake, for it is easily broken by a wind, when top-heavy.—E. E. REXFORD.

BEANS AND LETTUCE.

A succession of vegetables of all kinds should be kept up as much as possible. Of course, our friends at the South are enabled to do this much easier than we at the North. I find I can continue sowing to advantage the Dwarf Wax Bean as late as the tenth of August. Some seasons the planting may be made even later, but the danger of early frosts makes it imprudent after the time mentioned. My practice with this vegetable is to make sowings in small quantities every ten days or two weeks, commencing as early in spring as the weather admits. After the early Asparagus goes, this crop is ready, and it is a standard vegetable for the season, but it must be young and tender and crisp, and this is secured by frequent planting. With several varieties of Lettuce my table is supplied with a good salad from April to November.—P. B. B.

STRAWBERRIES.

From the fact that good Dame Nature, with generous, loving hand, has scattered the Strawberry over a larger portion of the great world than other kinds of fruit, I am led to believe that she regarded it most worthy and best of all her fruit productions. No other fruit is so cosmopolitan in its character. It grows almost up to the line of eternal winter, as well as in lands of perpetual summer, on mountain top and in valley, in field and garden.



SHARPLESS.

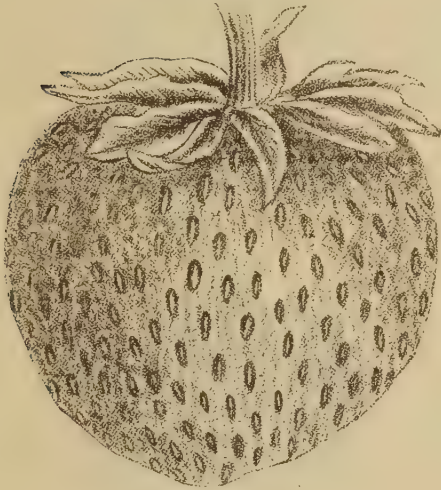
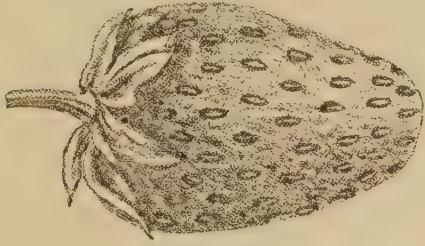
But the good dame, having done so much, has ever been disposed to resent any meddling interference by man with her original production. If she humors him in one way she surely plays him a trick in another. Human greed demands a big berry, and she gives him, among others, the hugh, shapeless Sharpless, eight or nine inches in circumference, but she puts no more real Strawberry into it than she does into the little, exquisite morsels that grow in the pasture fields for the birds, only a little more pulp and water. She constantly tempts man to new trials, now giving him size and flavor, but accompanied by unproductiveness, or arbitrary requirements in regard to soil or locality.

The law of nature seems to be only so much real Strawberry essence from a given space of soil. Can it be that bye-and-by somebody will evade this seeming law, and we shall have flavor, size, productiveness and vigor, all in one? WILSON came very near it with his Albany, but the dame was cross over it and put in too much acid.

I mistrust she has been waiting to give the secret to one of her fair daughters, knowing they so generously share such things with others. At all events, the experiment of trying for new sorts is peculiarly appropriate for ladies to engage in. It is a pastime that will charm and fascinate any whose tastes lead them to try it. The process is simple. Gather dead ripe berries, the largest and finest, if from a bed with many sorts so much the better. Crush and wash and press through a coarse cloth as much pulp as may be, then scatter the seed on mellow, rich soil, press boards firmly down on the soil and allow them to remain until spring. This keeps weeds from growing. When plants are large enough, transplant into rich soil and give good cultivation. Innumerable varieties will result and among them may be the "coming berry," the "perfect Strawberry." If there is very little ground, very little work will do much. Should any lady reader of these pages be the fortunate one to coax the great secret from nature, I promise her a colored plate of the fruit in this MAGAZINE and some nurseryman's check for at least one thousand dollars, but neither the one nor the other will give her half the pleasure she will receive from the study of the plant and watching the development of her children of the garden.

My experience is confined to observation made in my own small garden, a dark, rich, moist loam. With me the Cumberland Triumph is the most valuable sort for home use. It is very productive, fully equaling Wilson's in this respect; plants vigorous and hardy, ripens about as soon and lasts longer than Wilson's; fruit large to very large, beautiful in shape, being round and regular, light red, flesh tender and delicate. I wish I could add, and high flavored, but I can not. The fruit is sweet and pleasant but not more. Mixed with Wilson's Albany they do very well. I recommend this sort for trial for home use.

The Bidwell is, with me, a complete failure; sets an enormous amount of fruit, but brings to perfection very few; the tips of the berries do not ripen until the rest is over ripe. When perfect they are beautiful and pretty good.



LONGFELLOW.

The Longfellow, of all the berries I am acquainted with, I deem most worthy of a trial for the home garden. It is a berry of great beauty, being handsome in shape, and of a deep, dark, glossy red; flesh firm but tender; is sweet, and well flavored. The plant is slender but is fairly vigorous. How productive it may prove to be I am not prepared to speak, but I judge it will produce a fair crop. Another feature, and a very desirable one, about the Longfellow is that it is a late berry, coming into use just as Wilson's and kindred sorts are passing away, thus prolonging the season, which is no small advantage.

Every garden should have a few plants of the Sharpless. It is not a great bearer, but the big berries crown a dish very handsomely.

Warren is a large fruited sort, fruit handsome, large and as good as any large fruit. Well worth a trial.

Hart's Minnesota is among the highest flavored of the sorts I cultivate; a good

berry but with me only a moderate cropper. Fruit of good size and very handsome.

Kirkwood is another large and handsome berry. I consider it worth a trial.

The above notes drawn by my neighbor, Mr. SOUTHWICK, from his personal experience and observation in his family garden have, in financial language, the value of their face, and so should pass current.

In addition, it may be said that, the illustrations of berries here shown give the real size of the average large berries of each variety, in no case the very largest.

Charles Downing, in this vicinity, is held in high esteem for its good size, good quality and productiveness, ranking among the very best.

Manchester is a fine, large berry, of good quality and a good cropper; from one year's trial here it promises well.

Crescent Seedling continues to be a favorite with most market growers, on account of its productiveness, although a berry of only medium size.

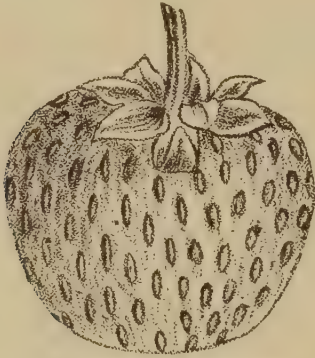


BIDWELL.

James Vick has, this season, maintained its reputation for a great yield. The berries are only of medium size, of a rich, high color, not of high flavor, and each plant produces a great number of berries. It appears probable that this variety cultivated in single hills on rich soil will be capable of yielding enormously, especially if provided with sufficient water.

We have yet to learn what will be its fate on the grounds of the ordinary cultivator.

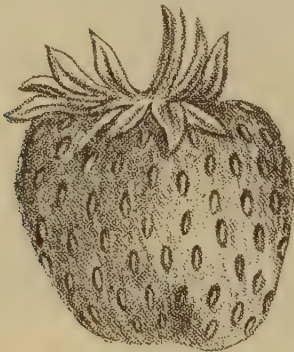
At a meeting of the Minnesota State Horticultural Society on the 28th of June, the question was discussed, "What is the best Strawberry for the farmer?" The prevailing opinion was that Wilson's Albany was the best. Cumberland Triumph was highly recommended. A vote was taken with the result of giving the



CUMBERLAND TRIUMPH.

first place to Wilson's Albany, the second to the Crescent Seedling and the third to Downer's Prolific.

A report by the editor of the *Indiana Farmer* of a visit to large Strawberry growers at Muncie and Bridgeport, states that few of Wilson's Albany were seen, but that Cumberland Triumph, Crescent and Kentucky made a fine show, yielding from 3,500 to 4,000 quarts to the acre. Further the opinion is given that the "Cumberland ranks among Strawberries



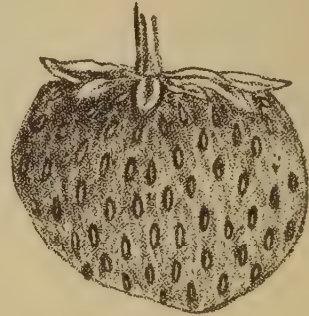
CRESCENT SEEDLING.

as the Ben Davis among Apples. Both are large and showy, and sell well in the general market, but in quality are inferior to many other varieties."

Large quantities of Strawberries are raised in Orange County in this State, and there may be found many experienced growers. At a re-union of a farm and garden club in that County, the last

of June, an exhibit of Strawberries was made. A berry of Hart's Minnesota was shown which weighed an ounce, and a Sharpless that weighed an ounce and a half. "The members pretty generally agreed that the Crescent Seedling Strawberry was the best yielder, but was rather sour and not as good flavor as the Downing, Duchess, Bidwell, Longfellow and some other varieties."

At a meeting of the Dayton, Ohio, Horticultural Society, the members expressed a high estimate yet of Wilson's Albany as a shipping berry in comparison with the newer varieties. For this purpose Mr. OHMER, who had a large experience, knew no better sort. Some preferred the Sharpless, some Burr's New Pine and others the Crescent and the Great American. Mr. OHMER thought that if one variety only should be cultivated the preference must be given to Cumberland Triumph.



CHARLES DOWNING.

Reports from New Jersey state that in some parts the Manchester is productive and of large size under good cultivation; in others it has suffered from rust or blight.

Bidwell does not maintain its reputation there, as it ripens unevenly, remaining white on one side.

The Primo, which is there cultivated as a late market variety, is on light soil only an average plant with medium sized berries, but on heavy soils it is remarkably vigorous, very prolific, and the berries are of large size and very good flavor.

Sharpless takes the lead as the best market berry, since, on account of its size, it commands the highest price.

The *Fruit Recorder*, in making notes of many varieties, says as follows:

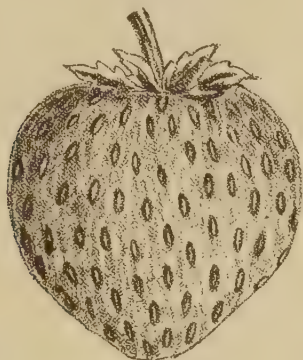
"Longfellow, magnificent, delicious, large, and uniformly so; one of the best.

"Warren another fine sort; choice as to flavor and productiveness.

"Mt. Vernon. Here we have one of the most valuable kinds; similar in appearance to Cumberland Triumph, but more productive.

"Park Beauty is a great yielder, of uniform, large, light glossy scarlet fruit, equally as productive as the Crescent, but larger fruit.

"Prouty; we have no sort that will out-yeild it, and for beauty and attractiveness it has no superior.



MANCHESTER.

"Windsor Chief; taking everything into consideration, this is our old favorite sort. Its yield is simply marvelous, and that, too, of the most perfect and uniform berries we have ever seen, while the rich, glossy scarlet of the fruit and perfect shape sell them quickly from the market stand.

"James Vick yields a very heavy crop, but a large proportion of the fruit is very small, which will be against it, we fear, as a market sort. Still, it may do better next year."

The *Rural New-Yorker* reports that from the four plants of James Vick growing on its trial grounds, three hundred and eight ripened berries were picked, and remarks, "The berry is quite firm, with red flesh, which is not of high quality. From this test it would appear that the James Vick should be prized for its hardiness, healthiness, vigor and productiveness, while the quality and size of the berries will stand against it somewhat."

A communication from CHARLES A. GREEN, who introduced the James Vick, says that after this year's trial "I claim for the James Vick that it is the most productive of any berry I have tested at Rochester, that it is exceedingly firm, of a bright color, and has the habit of keeping long on the vines unpicked, and possesses great vigor and vitality.

"JOHN J. THOMAS writes me that the James Vick out-blossomed and out-grew anything he has, that though he lost much fruit from wet weather, he picked at one picking at the rate of eighty bushels per acre.

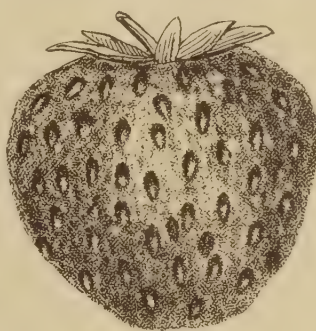
"CHARLES HAMILTON, Ripon, Wis., says that their Horticultural Society considered the James Vick the most promising of all the new varieties.

"DANIEL PERRY, of Oswego, N. Y., says it is the most prolific berry he ever saw.

"Mr. JOHN T. LOVETT, of New Jersey, writes me that the James Vick has exceeded his expectations; that it is as productive as Crescent, and firmer, and keeps long after ripening, that the form and color are fine, and the plant perfection. He says it must occupy a high position as a market berry."

Looking over the reports, now, in regard to all these varieties, it may be properly inferred that the character of most or all of them varies with locality and soil, and of this there is abundant proof, which has been accumulating for years.

A vigorous constitution sustaining it in all localities and under diverse conditions, is one of the most important qualities; this, Wilson's Albany has, or rather had, for many years before its failure commenced, and this enabled it, with its other good qualities, to become pre-eminent. From all the testimonies given above it would appear that the Crescent



JAMES VICK.

Seedling and Cumberland Triumph possess hardy and vigorous constitutions, and this claim is especially made for the James Vick.

Every Strawberry raiser should have at least three or four varieties, and not place dependence on one. More or less trial is necessary in every locality to determine what varieties are most suitable.

GARDEN NOTES.

The bug and worm war begins soon, but I believe in taking the initiative, and acting on the offensive from the start. It is easier to prevent worms than to kill them off. Do you notice that soils rich in potash, light and well drained, harbor fewer worms than either a sodden old garden ground or one where the barn-yard stuff has been dumped and plowed in without other dressing? Whether your soil is rich vegetable mold, like the black bed of the prairies and new clearings, or is old cropped land, its salvation will be thorough dressing with ashes, lime and plaster. My garden was reclaimed from a woody hillside, five or six years ago, and has been heavily dressed with barn stuff up to this time. It is gravelly loam, with strong clay underneath, and gravelly; I wish the stones were only potatoes, that's all. The neighbors tell me the worms will pick off the Cabbage bugs, and the Potato bugs eat the Tomatoes. Will they? Those early summer Cabbage plants were set out in a small furrow four inches deep, which was sown thick with sifted wood ashes, covered by sifted mold as they were put in from the seed-bed. One plant out of a hundred has been nipped by a worm, the rest are green and strong, with an evident notion of out-growing the bugs and worms both. As soon as the morning's work at the desk is over, I shall administer vermifuge to the Brassica family, that's the surname of Cabbage, Cauliflower, and their kin, you know, in shape of strong doses of soot, sifted round the plants, and a decoction for the leaves. When the Corn was planted, more ashes than manure went to the hill, and there was no stint of either. We have wood ashes which are scrupulously saved for special dressings, but I am taught by the example of the best gardeners that coal ashes are too valuable to be lost, especially for soil apt to bake, as this does. All the coal ashes from the house are screened for cinders and then sifted through a meal sieve, getting out the fine cinders which are good for keeping summer fire in the cooking range, and leaving the ashes in fit state for the garden. There is just enough alkali left in the coal ashes to neutralize any sourness in the soil, while it absorbs the ammonia of animal pro-

ducts and lightens the clay subsoil like so much sand. Over and beyond this, all the lime I can afford goes on the soil till I think worms will find it most unwholesome dirt, and Potato bugs will choose some other ground to lay their eggs in. What do the prize cultivators use on their land? I have beside me the reports of three growers who took between them \$200 in premiums in one year for Potatoes, besides the enormous yield of six hundred and seventy-seven bushels an acre of prime Ruby and Snow-flakes. A rich soil spread half a foot deep with well-rotted manure and one peck of wood ashes to the hill, applied in the earth and as top-dressing, is responsible for such yield as this. I hope the time will soon come when ashes will be shipped by the car load from the wood burning parts of the country, and all the old housewives will learn to save their ashes as carefully as their rags and soap grease. And the factories should find it profitable to put in soot-saving contrivances, which will purify the air of towns and save the priceless article for the gardeners, who can afford to pay enough for it to defray the cost of putting in the necessary screens to the manufactories thrice over in one year. Getting ahead of the insects is a great move in the garden.

Some available hand on the place had to fall sick, this spring, thanks to the malaria from a winter in the city, and threw things behind so that planting was very little account. But, blessed resource, I could buy plants ready to set out, in the city, as soon as the ground was warm enough for the neighbors to put seeds in. Livingston's Perfection, seven inches high, stocky and thrifty, at twenty-five cents a dozen, were put in after dark, one night, but the soil was made too rich for early growth, by one of those garden idiots who have but one idea, that barn-yard manure is the only essential for garden stuff. The soil was so rich and strong the plants, spite of drenching rains, wilted as the sun came out, and, to-day, two weeks after setting, are just out-growing their rust. The deep blackish green of the top leaves promises strength and yield for the main crop, but for the early Tomatoes I depend on the giant plants which the Boston gardeners send out, strong, bushy

vines, fifteen inches high, and almost ready to blossom. It is a good price to pay, fifty and seventy-five cents a dozen for Tomato plants, but they are worth it in such a case, and I was determined they should not lose a day's growth if care could help it. The gardener who sold them gave me explicit directions to set the plants deep, to lay them slanting in a furrow, six feet apart each way, and cover fully a third of the vine with the earth in its leaning position. He said this would insure their thriving. Well, I brought the plants home in my lap, in the cars, to insure them without delay, and with careful handling; then they were set out in the prepared soil by lantern light. The roots were taken out with their own earth clinging to them in a ball, and set in a pint of suds in the deep hole ready, lest pouring water on them would wash their roots bare, and the mellow earth hilled about them over the first leaves. Alas, for the attempt to lay them slanting! When I came back to the ground, after searching in the house for mats and strings to protect them, a well meaning hand had carefully set them upright. Of all noxious insects in the garden, the person who knows too much is to be dreaded worse than Cabbage-worms or Tomato-fly. It was no use to tear things up again, so the Tomatoes were carefully tied to supports of Pea brush, and a motley guard of baskets, barrels and boxes turned over them to shield them from the strong wind blowing. A high wind injures newly set plants as badly as sun-scald or cutworms. Next day, all the shade was taken off bright and early, by the evil genius of the garden, who "knew Tomatoes needed all the sun they could get." I sent out directions to have them all carefully secured, and went out an hour later to find the large tender plants tied up in a newspaper round a single stake, the branches bruised and drooping, ready to go into a quick decline. I cut those strings in a hurry, stuck three rods round each plant at a distance to guard it from thrashing or bruising, sprinkled the leaves well, and then, as the safest thing to be done, turned all the boxes, barrels and big peach baskets over the plants and left them to recruit. That was Saturday, and the wind blowing a gale; the covers were allowed to stay on till Sunday evening.

This Monday morning, the Tomatoes look fresh as when lifted from the cold-frames, and will go on to flower and bear without delay.

I'm convinced that it will pay to have a set of plant-protectors for all sorts of things, something like a V eaves spout, in sections fifteen feet long, to turn over young Cabbage and small plants, with bushel and half bushel sizes for larger ones. Light frames covered with cheap cotton will be the best; but for the present there is a bounty offered the school-boys for all the old peach baskets they gather at a cent and two cents apiece. There is one comfort of a small garden. You can put an acre under cover, when for dozen-acre plots of Cabbage or Lettuce the large growers must wait till the world goes under a cloud. Meanwhile the plants which received the ordinary amount of shade from a newspaper or big Cabbage leaf for a day or two have hard work to live under this hot May sun, and will come straggling along in time for worms and bugs to attack them. That is some people's notion of gardening, to give the plants a certain amount of care, and let them live or die on it as they can. It pays better to give them such jealous guard, such careful nursing, that they must thrive, and do their best. For I hold privately the same creed as the Southern Colonel who was in the habit of saying that the best was only good enough for him.—S. P.

◆◆◆ "CONSIDERABLE SPORTING."

I have frequently read accounts in your ever welcome MAGAZINE of the sporting of different plants and flowers. Yet I have never noticed where more than one, or perhaps two, sorts showed an inclination to sport. I never had any plants of a sportive nature till last year, when I almost came to the conclusion that it had become infectious to many of my plants, and I almost took to sporting myself, in order to keep up with them. Last year, I had seventy-four pots and ten baskets, though most of them were young plants, including Abutilon, Begonia, Cactus, Carnations, Echeveria, Fuchsias, Geraniums, Gloxinia, Pelargonium, Madeira Vine, Ivy, Oxalis, Tradescantia and a few bulbs and Monthly Roses. The first and most singular to show its sportive nature was a Monthly Rose, La Choise; its first

flower was of a delicate pink, this was still a handsome flower when the second one opened a deep rose, the third was a deeper pink than the first, and again the fourth was a darker red than the second flower, but there it stopped its sporting and even now it has three beautiful pink Roses.

The next to sport was a Fuchsia, Pearl of England. I started this from a slip the autumn previous; as soon as it was well rooted I pinched it back to make it branch out. I allowed but two branches to grow. Last August, one branch had two flowers of extraordinary size, actually measuring three and one-fourth inches long, and two and one-half inches across; the corolla and sepals of each consisted of six well developed parts, each flower was a perfect beauty, and two weeks later the other branch had three flowers, of usual size and shape.

The next to sport was another Fuchsia, Clipper. This, also in August, put forth two flowers, its first, and made a mess of one of them. One of the flowers was perfect, the other was a demoralized thing, having but three petals of regular form, while the fourth consisted of a large leaf, scarlet at the base and the rest was green with a deformed corolla grown to it.

The next sport was a Geranium, Cloth of Gold, which in October had four trusses of flowers, two of which were single trusses and two were double, that is, the second truss shot out from one of the flowers of the first and largest truss.

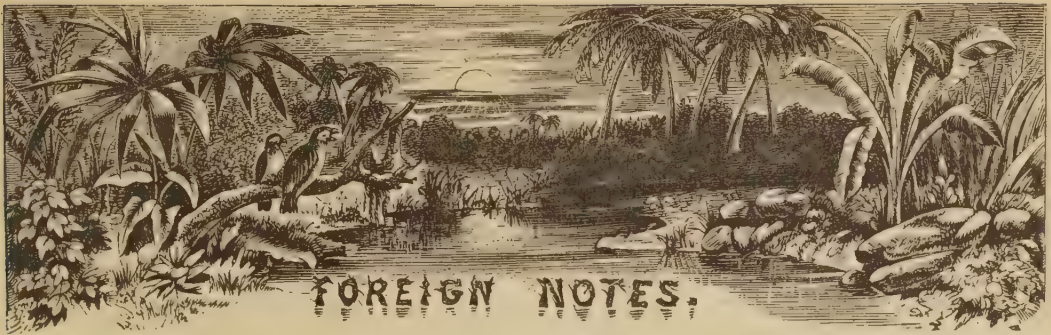
The last was a Carnation, Hinsdale. This, like Clipper, had one very demoralized looking thing for a flower, which consisted mostly of an unnatural looking green leaf with only a partly developed flower attached to it, trying, apparently, to grow into a ready made button hole bouquet, but failed in its effort.—J. L. S., *Lopez Island, Wash. Ter.*

ASPIDISTRA LURIDA.

The lurid or dingy flowered Aspidistra is a herbaceous perennial greenhouse plant, grown merely for its ornamental foliage, belonging to the natural order Liliaceæ. It is a native of China, whence it was introduced in 1822. It is a plant of slow yet robust growth, with large, erect, wavy leaves, of a glossy green color, from eight to twelve inches in length and from four to six inches in width. The flowers being small, solitary

and of a dull purple color are to most persons comparatively insignificant. To the lover of nature, however, they are singularly attractive, from the fact that they are produced on a level with or underneath the surface of the soil. It is a plant adapted for cultivation in rooms, for it does not suffer from dust, gas, etc., and does well where other plants would die. To those who are about to attempt the cultivation of plants in rooms I know of none more suitable than this, as it will stand more neglect and ill treatment than any other plant with which I am acquainted. The Aspidistra is a plant of easy cultivation, doing well in almost any soil, and in any situation; notwithstanding this fact I know of no plant that will better repay liberal and generous treatment. Select a porous pot, and one that is proportionate to the size of the plant, taking good care to drain it well, as good drainage is an essential point in plant cultivation; use a compost composed of well rotted sods and thoroughly decayed manure, in the proportion of two-thirds of the former to one-third of the latter. During the winter a temperature of 45° to 50° will be sufficient, and give water as often as necessary, sponge the leaves off occasionally, in order to remove dust and to keep the foliage in a healthy condition. During the summer plant out in a partially shaded situation, in rich, deep soil, care being taken to give a liberal supply of water at all times, which is quite essential to the well doing of the plant. For the decoration of the conservatory or veranda during the summer season it is also specially valuable; for this purpose, repot the plant early every spring, and keep it well supplied with water, not forgetting a little liquid manure occasionally. Propagation is effected by division of the plant, which is best done when repotting early in the spring. The generic name is derived from Aspidiseon, a little round shield, from the form of the flower, and the specific name in allusion to its dingy color.

Good strong plants can be readily obtained from florists at very moderate prices. This Aspidistra is a plant that is very popular in the London markets, where large numbers are annually sold, and in this country it is deservedly becoming popular for decorative purposes.—CHAS. E. PARNELL, *Queens, L. I.*



ASPARAGUS.

The following extracts are from "Historical Jottings on Vegetables," by a writer in the *Journal of Horticulture*:

"When a lady asked SAMUEL JOHNSON, one day, why he had given a rather odd definition to some word in his Dictionary, expecting he would assign a profound reason for so doing, the great man answered, to her surprise, 'Well, Madam, that was ignorance, pure ignorance.' The Doctor did not know much about Greek, therefore it was probable he also failed to explain the derivation of Asparagus, which, if we had it from the Romans, is originally Greek, and, as Mr. GLASSPOOLE observes, means the tender shoots of a plant not yet unfolded—in fact, a name used loosely by the ancients for various sprouts eaten in spring or at other seasons. It was clearly not restricted until later times to what we call Asparagus, but that plant was recognized and approved of as an article of food at least two thousand years ago. It is certain CATO, the elder, laid down directions concerning its culture. He recommended, amongst other things, the sowing of its seeds in those beds where the reeds were grown to support the vines.

"Two varieties of the wild Asparagus, the mountain and the marsh, are noticed and commented upon by ancient writers on natural history or gardening, and from a reference made by JUVENAL to the mountain kind, when he is describing a dinner, it would seem that this was preferred to the Asparagus of the marshes. Both, however, were gathered and eaten, and in the time of PLINY the plant began to be cultivated in gardens, partly for food, no doubt, but also because it was deemed to possess medicinal virtues of no ordinary character. With his curious accuracy, PLINY notes that very fine As-

paragus was grown about Ravenna, three or four heads commonly weighed a pound, and that could be bought for the low price of one as—not more than 2d. certainly. One Italian fashion of cooking Asparagus was peculiar; the heads were carefully dried, and then afterwards dressed by putting them into very hot water, a few minutes' rapid boiling rendering them fit for the table.

"Undoubtedly the Asparagus is a true native of these islands. It is still to be found wild in the west and southwest of England. On the coast of Cornwall there is an island called Asparagus Island, and it occurs also upon the continent in many places. France and Holland formerly produced it in much more abundance than they do at present.

"It is impossible to say now who was the first grower of Asparagus for the London market; there has, however, survived a fragment of history concerning a garden at Lambeth, which in the reign of CHARLES I was known as the 'Sparagus Garden.'

"As was not unusual in the seventeenth century, what was at its commencement simply a place for raising vegetables became subsequently a pleasure resort, and people went to the 'Sparagus Garden' to eat both vegetables and fruit probably. PEPYS records that he went there in April, 1668, taking a couple of lobsters with him in the hope of meeting KNIPP, the pretty actress, who had been his wife's maid, but he didn't, and had to dine alone. EVELYN, writing near the end of the seventeenth century, says in his quaint way, 'The large Dutch kind of Asparagus raised in highly manured beds is not so sweet and agreeable as those of moderate size, and yet to show what *solum*, *cælum*, and industry will effect, the honorable and learned CHAS.

HATTON made my wife a present of Asparagus, the bundle containing sixty, which weighed fifteen and one-quarter pounds. Allowing them four ounces to each head, one was as much as one person would desire to eat, and, what was more observable, they were not raised by any extraordinary compost, but grown in a natural, sweet, rich, well cultivated soil about Battersea.'

"It should be noted that the popularity of the Dutch variety of it is to be explained by the arrival of Dutch William upon these shores. One of the historians tells us that his manner of eating the heads clean up at the dinner table, and not merely sucking of the tops, had to be imitated by those who were allowed to join the Royal dinner party, for otherwise WILLIAM III would have felt himself highly offended. But our forefathers in England had some odd ways of eating Asparagus; thus, EVELYN, already quoted, states he had seen the heads eaten raw with oil and vinegar. In the reign of Queen ELIZABETH people cut up Asparagus tops and mixed them with other vegetables used to flavor broths and soups.

"We have taken strange liberties with its name; in Covent Garden Market few persons speak of it except as 'grass,' the general English appellation being 'sparrow-grass,' one which BATTY LANGLEY defends and explains. 'It originated,' he says, 'in the resemblance which the top of the bud bears to the shape of a sparrow's bill.' I venture, with all due respect, to think it is simply a corruption of the imported name; not the only one, for both GERARD and PARKINSON state it was often called 'sperage.' But LANGLEY's comment in his 'Principles of Gardening' enables us to carry 'sparrow-grass' back as far as 1728, 'sperage' would be at least a century older."

A NOVEL ARBOR.

A correspondent of the *Journal of Horticulture* gives the following method of forming a summer house or arbor: "It was formed of Laburnum and Honeysuckle. Some years ago, a wooden, eight-sided erection had been put up. To each post was planted a young Laburnum, and with Honeysuckles between them. These were regularly trained up the sides and tacked down to the roof.

The smaller twigs being interlaced like basket-work. The Laburnum had become posts and roof; the Honeysuckle covered the sides. The wood was then removed, leaving a handsome arbor that could not very easily have been formed otherwise." In some parts of this country, where the Laburnum would be tender, the Hawthorne of different varieties might be substituted; they would give equally as strong a frame work. The Wistaria as a climber, with beautiful flowers, could be employed with a good effect.

STRIKING CUTTINGS IN WATER.

Perhaps it is not generally known that a number of plants may be propagated by cuttings in water; such, however, is the case, and I will describe how it is done, and give a list of those plants that I have been successful with. Procure a few one-ounce or two-ounce phials, and let them be filled up to within half an inch of their necks with clear rain water, inserting the cuttings, which must not touch the bottoms of the bottles, and place them in a sunny window or a greenhouse, or, what is better, plunge them in a hot-bed, where a steady temperature of 70° or 75° exists. Most of the plants named below will emit roots in from four to twenty-one days' time. I have observed, as a general rule, that the rooting process goes on best and with the most vigor in May, June and July. The Melon, Cucumber, &c., in a week or four days; Calliopsis lanceolata, fourteen days; Heliotropium Peruvianum, fourteen days; Gloxinia and Gesneria, leaves with buds at the base, or cuttings at a joint, gradually; Petunia, about ten days; Salvias, quickly; Justicia speciosa and carnea, readily; Turnera trioniflora will root and flower quickly; Aloysia citriodora, fourteen days; Melastoma cœrulea, in a few days; Thunbergia alata, cuttings of two upper joints, very soon; Coronilla glauca takes some time; Erythrina laurifolia and Dahlias after a certain period, previous to which detachable granulations with air bubbles form round and near the heel; these rise to the surface like little masses of pith, finally the radicles protrude. I do not think that the old modes of propagation are to be discarded or discontinued; still, there is one great advantage which attends the mode of prop-

agation by water cuttings, in so far as the minutest fibres are not injured by removal, and provided ordinary care be used in placing the plant, first in very light soil with a little silver sand about its roots, there will not be any shrinking or failure. The cuttings when taken should be in a tender state, not woody, and I think that the method applies chiefly to the tender species of plants.—*Correspondent of Gardening Illustrated.*

STRAWBERRY DISSEMINATION.

Dr. M. W. BEYERINCK, of Holland, has proof by observation that garden slugs eat Strawberries, and that the seeds of the fruit, after passing through the snails, *Helix pomatia*, will germinate. By keeping snails confined in a vessel and feeding them on Strawberries, and afterwards sowing the seed passed in sand, from which plants were produced, he has reached conclusive proof. The Doctor remarks: "The fact is thus proved that snails and slugs do eat Strawberries, and that, after having passed through their bodies the seeds retain their power of germination. It must be added that many of the akenes after this treatment do not germinate, at which, however, no one will be surprised who considers how many of the seeds of a Strawberry are empty and do not germinate at all. In any case it may be granted that free-growing Strawberry plants are occasionally disseminated by snails and slugs, and it is possible that, in the course of ages, these animals by unconscious selection have converted a dry receptacle into a fleshy mass. May it also be inferred from what has been said that slugs are attracted by the fragrance, and consequently are provided with an organ of smell? And that, moreover, they are able to distinguish between the red of the fruits and the green of the leaves."

HYACINTHS IN THE GARDEN.

In an account in the *Journal of Horticulture* of a visit to Mr. VAN HOUTTE'S Nurseries, at Ghent, Belgium, is the following in relation to the cultivation of Hyacinths: "The late Mr. VAN HOUTTE determined on cultivating Hyacinths in his nursery the same as they are grown in Holland, and there is little doubt that there are districts in England where they might be similarly grown. The condi-

tions requisite for success are sandy alluvial soil and an ever-present supply of earth moisture to be drawn upwards by the sun to the roots. They cannot be satisfactorily grown on a dry subsoil, and no extent of surface watering can compensate for the absence of a naturally moist base. In Holland this earth moisture is ample. In the nursery under notice much liquid support is applied, but not in the orthodox manner. The Hyacinths are grown in a perfectly level part of the nursery, in beds four or five feet wide, with deep paths between them—needlessly deep for the ordinary purpose for which paths are devoted; but they serve another purpose here, being flooded at night with sewage, and thus the requisite moisture is supplied to the roots without being poured on the surface of the beds. The end justified the means, for the plants were vigorous, the spikes robust, and the colors clear and bright. Several acres were occupied, forming a great level expanse of flowers in blocks of colors of every hue produced by the Hyacinth, the general effect being magnificent. According to the evidence of some Dutch horticulturists there was no better example of Hyacinth culture in Holland than the one just cursorily alluded to." A valuable lesson is here given. In what manner it may be applied to the ordinary flower garden, we leave to the ingenuity of our readers. But the lesson is a good one.

AUSTRALIAN APPLES.

A sample of Apples has been received in England from Australia, sent especially to ascertain how the fruit would bear the voyage. "The fruit was packed in the ordinary hardwood cases of the Colony. Each Apple was simply wrapped up in thin paper. The cases were placed on board the steamer at Melbourne, on March 1st, and never touched till they were landed in London, on April 20th." The *Journal of Horticulture* says: "This is the first consignment of Apples from the antipodes we have seen, and we do not hesitate saying that we were surprised by the beautiful appearance and admirable condition of the fruit when placed before us. The soil and climate of Australia are evidently peculiarly adapted for the production of Apples of high-class quality."

A TEST OF SPECIES.

It is very curious to note the opinion of cultivators as to the limits of species. At the Scientific Committee, the other day, Mr. ELWES brought illustrations of Tulips and Fritillarias, to show the immense change which resulted in a comparatively short time from the cultivation of originally wild forms, and drew from them the conclusion that the number of species was very limited, but their variation great. On the other hand, such cultivator-botanists as M. JORDAN, dealing with exactly the same kind of evidence, would dub each one of these forms as a separate species. Species are judgments, says ASA GRAY, and the nature of the judgment in this case is, to a large extent, determined by the habitual frame of mind and prepossessions of the judge.—*Gardeners' Chronicle*.

EDELWEISS AND FILMY FERN.

The acclimatization of Edelweiss, *Leontopodium alpinum*, in the Bohemian mountains is to be tried, and a special nursery for this precious alpine plant has been established in the Grand Ducal Gardens at Schlackenwerth, in north-western Bohemia. When sufficiently strong the young plants will be taken to the Keilberg, one of the peaks of the Erz-Gebirgl range, which divide Bohemia from Saxony. In Killarney, we are told, *Trichomanes radicans* is all but as extinct as the Irish Elk, thanks to the uprooting energy of the tourist, and now we hear that it is imported from Maderia and the Canary Islands, and discovered in Killarney, for all who care to pay for a specimen of the *raal Fur-rn*.—*The Garden*.

THE CARBON OF PLANTS.

The *Gardeners' Chronicle*, referring to some experiments lately made public by M. CORENWINDER, an eminent chemist, of Lille, France, remarks that, "SAUSURE and BOUSSINGAULT were among the first to prove that the carbon which constitutes the bulk of the dry matter of the plants was derived from the carbonic acid gas of the atmosphere, and not from the soil. CORENWINDER has lately confirmed these observations by growing plants in pure sand with mineral solutions, but without any organic matter or carbonates. The carbon, therefore, must be taken by the leaves."

NEW STYLE OF PLANTING.

A writer in the *Garden* gives his practice of bedding varieties of taller plants with low-growing ones so as to cover the whole surface of the ground. This method was developed by a necessity at first, for lacking the necessary number of plants of *Pelargoniums* to fill a bed, the plants were set widely apart and the spaces between filled with "*Ajuga reptans purpurea*, the effect being charming." Now the method is followed by choice. "I give you an example or two of our doings at the present moment. *Alternantheras* planted thinly, and *Sedum glaucum* intermixed; *Fuchsias* the same, and green *Sedum Lydium*; *Pelargonium Sophia Dumaesque* and the *Herniaria glabra*; *Coleus* and *Sedum vera elegans*; large tree succulents, and the flowering and variegated creeping kinds of *Mesembryanthemums*." In the same manner hardy perennials that do not cover the ground are filled in with hardy low-growing kinds.

BLANCHING ASPARAGUS.

This is far better accomplished by an earthen pot, similar in form to the old-fashioned Sea-kale forcing-pot, only much smaller. The pots usually are made a foot high and six inches in diameter internally, and they have a small hole at the top, which may be closed with a plug of wood or clay. These pots are much employed in the warm parts of the Continent to blanch Asparagus completely by excluding all light, or to produce greenish heads by leaving the hole open. They are capital protectors against late spring frosts and from cold winds, and so in that way forward the growth of the heads during cold weather. In sunny weather the Asparagus becomes open and very green; it then retains much water on being served at table. From this inclination to become etiolated, and open in form, pots preserve it admirably.—M., in *Gardeners' Chronicle*.

LAYING TURF IN SUMMER.

I find that turf can be successfully laid down, if necessary, in dry and hot summer weather by simply covering it when finished, before it gets too dry, with about a quarter of an inch of light soil put through a half-inch sieve. The grass begins to grow through the soil in a very few days.—H. H., in *Gard. Chronicle*.



PLEASANT GOSSIP.

HELIOTROPE.

I want information regarding the treatment of the Heliotrope. When it should be cut down, how to avoid the dying of the ends of the leaves. Should charcoal be used for it, and does it require more moisture than most plants?—MRS. P. A. C., *Buena Vista, Cal.*

Old plants of Heliotrope can be re-potted almost any time during the summer, reducing both the tops and the roots. Use no larger pots than the roots require, for it is better to shift the plants once or twice into larger pots than to overpot them. They should be given a good strong soil, one composed of one part of old manure, one part of sand and four parts by bulk of fresh loam will be the best. Secure good drainage to the pot, and it is well enough to use a few bits of charcoal, though this is not customary. The moisture that this plant requires, or any, for that matter, must be judged of by the use made of it. Just as we would water an animal, giving it what it demands, no more nor less, so would we supply water to a plant. With a high temperature and a bright sun a plant passes through its leaves an immense amount of water, but with a low temperature or a clouded sky, or with both, the evaporation is much less. What is needed is to be judged of by the appearance of the soil in the pot. A wet soil does not need more moisture; a plant that uses the water that is given it whether that is once, twice, or more times in a day, should be kept supplied. But in watering a plant be sure and saturate the whole body of soil, do not give a dribble. Water thoroughly and then let the moisture pass away, and give more when the soil appears to be dry.

Give the Heliotrope a place near the glass, for it needs plenty of light. A day temperature of 65° to 75°, and lower at night is suited to it. Fumigating with

tobacco to destroy the green-fly is almost sure to injure the foliage, and it is better, therefore, to keep down the insects by syringing the plant with weak tobacco water.

A PLEACHED WALK.

Please inform me, in your MAGAZINE, what kind of trees would be the best for making a pleached walk; also, if you know of any such walk in this country.—H. L. N., *N. J.*

We understand by this inquiry that information is wanted in regard to trees that can be planted in a row on each side of a walk, and whose branches can be interlaced so as to form a dense shade. For this purpose we should select hardy, vigorous trees, but not those inclined to make a very large growth. Our native Beech would be an admirable tree for this purpose. It is a tree rather difficult to transplant, and they should either be moved when small or else be procured from the nursery where they have already had several removals. The American Hornbeam is also suitable, but it is probably too slow a grower. The European White Birch is very suitable for the purpose and sufficiently rapid in growth. The June Berry, or Shad Blow, will do, as also some varieties of the native Willow.

TUBEROSE IN GEORGIA.

My largest bunch of Tuberose has put up nineteen beautiful stalks, all of which are in full bloom. Is it best to take up and separate them, next fall? Will the same bulb put up another flower stalk next year if allowed to remain in the same place? Please answer in your next MAGAZINE.—A. W. M., *Albany, Ga.*

It will be best to lift the bulbs late in the fall and separate them, and plant in a new place. It is the strong, young bulbs that produce the flowers, and allowing them to grow together in one place too long exhausts the soil, so that a diminished bloom must follow.

STUDY OF PLANTS.

That people are interested in the study of plants is evident from the new works relating to this subject that are steadily being issued. One of the latest in the field is a handsomely printed volume of three hundred pages on "Elementary Botany," by Dr. MACLOSKIE, of the "Green School of Science," at Princeton, New Jersey, published by HENRY HOLT & Co., of New York. In the language of the preface, "this volume aims to supply a readable sketch of Botany, followed by a guide to work in the field and in the laboratory. Its opening part is a botanical primer, in the form of an examination of a well known plant. Then comes the general principles of the science, first as to the flowering plants and afterwards as to the flowerless plants, using the one group to illustrate the other." The work is exceedingly well illustrated. The directions for the examination of plants are particularly full, and indicate the careful, working botanist in the author. A part devoted to the derivation of terms, and a very full glossary and index add much to the usefulness of the book, which is sure to prove of service to those who are turning their attention to the mysteries of plant life and structure.

INSECTS AND WEEDS.

Will you kindly tell me what to do for my Verbenas? Something continually nips off the tips of the branches just as they are about to bloom. The only insect I can discover near them is the common black ant. The leaves are perforated and drawn out of shape. Last year, they were troubled with aphid and a little green worm, which ate its way down through the center of each bloom till its beauty was destroyed. The soil is a deep bed of forest mold with top-dressing of sand.

And what shall we do with our lawn? Last year, it was smooth as velvet until the latter part of July, then a short dry spell occurring, brown bare spots began to appear; we mowed it less frequently after that, sowed grass seed in the barren places and thought our lawn would be much improved. This year, it is all grown up to Plantain, and we are in despair. The mower will keep at bay all other weeds with which we have to contend; but the Plantain escapes unharmed. As the lawn comprises several acres, well set out with ornamental trees, it would be next to impossible to have the turf turned over, or to have the lawn dug over. So we await instruction with what patience we may.

Is it natural for a Locust tree to shed its leaves continually during the summer.—MRS. J. M. KLINCK, *Princeville, Ill.*

It is pretty hard to fight an enemy one knows nothing about, as this seems to be of the Verbenas. But as the leaves are

eaten, probably a sprinkling of Paris green might have the effect to weaken the appetite. Use the poison the same as for Potatoes, but do not have it too strong. The aphid mentioned can be destroyed by syringing with weak tobacco water, and the little green worm will succumb to a sprinkling with a solution of alum.

If the lawn is mowed frequently enough so that the Plantain is not allowed to flower and ripen and scatter its seed, it is probable that the plants will die out at least in two years. But if it should be decided to take more active measures to be rid of the pest, we know of none better than to have a two-inch chisel set in a handle four or five feet long, and with this implement let a person prod the plants just below the crown, severing the root. Go over the whole lawn carefully, and in this way clean it.

A healthy Locust tree should hold its leaves until frost.

DELPHINIUM NUDICAULE.

Why is it that Delphinium nudicaule is so seldom seen in cultivation? I will try to describe it briefly, as it is found in its native home, here in California. It usually grows in a light, rich, sandy soil, in a pretty shaded situation, throwing up a large thick bunch of light green leaves, completely covering the ground about the stem. From this bunch, in June, springs a strong, erect stem from five to six feet in height, rather thinly covered with the beautiful vermilion flowers, which are about an inch in length. This flower surely deserves more attention than it receives. It is one of the hardiest as well as the prettiest of its species. I think it would be more generally cultivated if better known.—T. S. PALMER, *Pomona, Cal.*

A MOSS ROSE.

I send you a leaf and bud of a Moss Rose such as I never saw before. The Rose is pink, large and very double and fragrant. Can you tell the name of this Rose? Please tell us all about this wonderful Crested Rose.—MRS. E. R. O., *South Toledo, O.*

The specimen received was that of the Crested Moss, or Cristata, one of the finest of the Moss Roses. To be sure of getting a plant of this variety true, it should be ordered of a reliable florist or nurseryman and not purchased of an unknown or irresponsible traveling dealer.

EMERSON—CARLYLIANA.

The correspondence of THOMAS CARLYLE and RALPH WALDO EMERSON, lately published, although especially interesting as showing the sympathy and affection existing between them during a long life-time, has diverse pleasant features, and one, not the least entertaining of them, is that of frequent allusion to country life and rural scenes, indicating the fondness of both of these eminent literary persons for nature in her quiet moods. Some of the passages most highly felicitous have been selected and are here presented.

In summer, with the aid of a neighbor, I manage my garden; and a week ago I set out on the west side of my house forty young Pine trees to protect me or my son from the wind of January.—EMERSON, 1838.

I believe in the spade and an acre of good ground. Whoso cuts a straight path to his own bread, by the help of GOD in the sun and rain and sprouting of the grain, seems to me an universal workman. He solves the problem of life, not for one, but for all men of sound body.—EMERSON, 1840.

You, friend EMERSON, are to be a farmer, you say, and dig earth for your living? Well, I envy you that as much as any other of your blessednesses.—CARLYLE, 1841.

And so my dear brother has quitted the roaring city, and gone back in peace to his own land; not the man he left it, but richer every way, chiefly in the sense of having done something valiantly and well, which the land, and all the lands, and all that wide, elastic English race in all their dispersions, will know and thank him for. The holy gifts of nature and solitude he showered upon you! Do you not believe that the fields and woods have their proper virtue, and that there are good and great things which will not be spoken in the city?—EMERSON, 1841.

Yesterday, one of the stillest Sundays, I sat long by the side of the swift river Nith; sauntered among woods all vocal only with rooks and pairing birds. The hills are often white with snow-powder, black, brief spring tempests rush fiercely down from them, and then again the sky looks forth with a pale, pure brightness—like eternity from behind time. The sky, when one thinks of it, is always blue,

pure, changeless azure; rains and tempests are only for the little dwellings where men abide. Let us think of this, too. Think of this, thou sorrowing mother! Thy boy has escaped many showers.—CARLYLE, 1842.

And when shall I show you a pretty pasture and wood-lot, which I bought last week, on the borders of a lake which is the chief ornament of this town, called Walden Pond? One of these days, if I should have any money, I may build me a cabin or a turret there high as the tree-tops, and spend my nights as well as days in the midst of a beauty which never fades for me.—EMERSON, 1844.

Of this place he again writes:

I, too, have a new plaything, the best I ever had—a wood-lot. Last fall, I bought a piece of more than forty acres, on the border of a little lake half a mile wide and more, called Walden Pond, a place to which my feet have for years been accustomed to bring me once or twice a week at all seasons. My lot, to be sure, is on the farther side of the water, not so familiar to me as the nearer shore. Some of the wood is an old growth, but most of it has been cut off within twenty years, and is growing thriftily. In these May days, when Maples, Poplars, Oaks, Birches, Walnut and Pine are in their spring glory, I go thither every afternoon and cut with my hatchet an Indian path through the thicket, all along the bold shore, and open the finest pictures.

My two little girls know the road now, though it is nearly two miles from my house, and find their way to the spring at the foot of a Pine grove, and with some awe to the ruins of a village of shanties, all overgrown with Mullein, which the Irish who built the railroad left behind them. At a good distance in from the shore, the land rises to a rocky head, perhaps sixty feet above the water. Thereon I think to place a hut; perhaps it will have two stories and be a pretty tower, looking out to Monadnoc and other New Hampshire mountains. There I hope to go with book and pen when good hours come. I shall think then, a fortnight might bring you from London to Walden Pond.—EMERSON.

You are to know that in these days I lay out a patch of orchard near my house, very much to the improvement, as all the household affirm, of our home-

stead. Though I have little skill in these things, and must borrow that of my neighbors, yet the work of the garden and orchard at this season are fascinating, and will eat up days and weeks, and a brave scholar should shun it like gambling, and take refuge in cities and hotels from these pernicious enchantments. For the present, I stay in the new orchard.—EMERSON, 1847.

You do very well, my friend, to plant orchards; and fair fruit shall they grow (if it please Heaven) for your grandchildren to pluck; a beautiful occupation for the son of man, in all patriarchal and paternal times, which latter are patriarchal, too!—CARLYLE, 1847.

Some three or four weeks ago, I came rolling down hither into this old nook of my birthland, to see poor old Annadale again with eyes, and the poor remnants of kindred and loved ones still left me there. * * * This is my eldest living sister's house; one of the most rustic farm-houses in the world, but abounding in all that is needful for me, especially in the truest, silently-active affection, the humble generosity of which is itself medicine and balm. The place is airy, on dry, waving knolls, cheerfully (with such water as I never drank elsewhere, except at Malvern). All around me are the mountains, Cheviot and Galloway, three to fifteen miles off, Cumberland and Yorkshire, say forty and fifty, and the Solway brine and sands intervening. I live in total solitude, sauntering moodily in their checkered woods, galloping about once daily, by lanes and roads, oftenest latterly, on the wide expanses of Solway shore, when the tide is out, where I see bright, busy cottages far off, houses over even in Cumberland, and the beautifullest amphitheatre of eternal hills, but meeting no living creature; and have endless thoughts as loving and as sad and sombre as I like.—CARLYLE, 1865.

THE HANSELL RASPBERRY.—This new variety that is now attracting attention is said to have commenced to ripen at Little Silver, N. J., this season, on the 19th of June, producing abundantly. Its fair size, too, commands notice, and altogether it promises to be a good acquisition, both for market and the family garden.

DESTROYING CUT-WORMS.

A new method of destroying cut-worms has lately been described in an eastern journal. A piece of ground prepared for Tobacco plants was partly planted, when it was found the cut-worms were eating the plants. Hunting and hand-picking was engaged in for three days without entirely ridding the place of the pest, and at the end of that time all the plants set had been destroyed. A trial was then made of different kinds of leaves placed on the ground to see what ones the worms would prefer; it was found that they were not very particular as to what kind of food they had, but perhaps showed some preference to the young, tender leaves of Chestnut trees. A quantity of these were then taken and soaked in a mixture of Paris green and water, a tablespoonful of the poison to each gallon of water. The leaves were then placed over the field at short distances apart, each one being held to its place by a small stone or a little soil. "The next morning," says the narrator, "I went out in the field to see what was the result. What I saw did me good. There those worms lay under the leaves, like a hill of potatoes; they had eaten little shot holes through the leaves, and some were dead and some in a very stupid condition—they never chewed again. I then set out my Tobacco and was not troubled with the cut-worm after that."

CAUTION TO SILK RAISERS.

"Make haste slowly," is the advice of Professor C. V. RILEY, Entomologist of the Department of Agriculture, in regard to Silk culture. The low price at which raw silk can now be brought into the country, free of duty, is not favorable to its production here. It is feared that most of those undertaking the business will be doomed to disappointment.

PRESERVING POSTS.

E. WILLIAMS, of Montclair, New Jersey, says that he has trellis posts in his vineyard that have been in use twenty years, that were coated with coal tar about the surface of the ground when set. As the place of most rapid decay is at the surface of the ground, it is only necessary to apply the tar there and not over the whole bottom part of the post.

RANUNCULUS AND ANEMONE.

In the June number, some one asks questions in regard to the Anemone and Ranunculus, and as I have had some experience with them and very good success, I thought I might help others that have not experimented with them. I purchased my first lot of roots in February, 1882, and kept them until the first of April, and then planted them out on the north side of a summer house. They grew and bloomed finely, but did not last long, as they got all the afternoon sun and were not watered often. When the foliage died down, in July and August, I had to lift them, as they were in the way of building. I dried them in the shade and then packed them in the Buckwheat chaff that I received them in. In April last I planted them with some others that I had just purchased, giving them a place on the north side of the dwelling house, where they do not get any sun until five o'clock in the afternoon. They look well and have been blooming three weeks, and are still budding. I have kept them well watered and I think they pay me for all the trouble. They are very cheap and are easily kept over winter. I keep mine in the dining room in the china closet, where it never freezes. I shall always lift mine in the fall. I have both double and single varieties, but think the single preferable.—MRS. JENNIE DEWERS, *Alexander, Ill.*

IRIS—CATALPA.

Will you allow me to ask a few questions, to be answered through the MAGAZINE. Please tell me the proper depth to plant the different varieties of Iris roots, *Susiana major* in particular, for garden culture. Perhaps some of the regular contributors will give an article on Iris culture soon, and tell the beginners all about it. I also wish to know whether Catalpa can be grown from cuttings, and if so, at what time to take them, and the size. Is the seed slow to germinate, and delicate?—E. L. C., *Indianapolis, Ind.*

Plant the Iris roots three or four inches deep. The tubers of *I. Susiana major* should not be put in the ground until very late, or until it is certain that winter has come. They start so quickly that if allowed a few days of mild weather in the fall they will push above ground only to be destroyed. The Catalpa may be propagated by cuttings, but this method is never practised, since the trees are easily raised from seed, which germinates readily sowed shallow in light soil.

GENTIAN.

Among the most widely distributed of our native Gentians are the three species here illustrated. All of them are handsome and interesting. The Fringed Gentian, *G. crinita*, grows a foot or two high. The handsome sky-blue, four-parted flowers, with fringed petals is shown full size. The flowers are borne at the summit of the erect stem, often several on a plant. The plant grows on rich, low grounds, and blooms the latter part of



FRINGED GENTIAN.

September, or later. It is an annual and probably could be easily cultivated. Strange to say, it is a plant which, notwithstanding its beauty, has not found its way into the seedsman's little packets. It may be that its seeds do not retain their vitality long, but require to be sown as soon as ripened; still, this is only a surmise. To try its cultivation, therefore, one would need to find the plants in their native homes and watch them ripen their seeds, and collect and sow them soon after, just as they are naturally

sown by the plant. This would be a most appropriate wild garden plant.

The beautiful lines written by BRYANT on this flower will be associated with it as long as the English tongue lasts.

"Thou blossom, bright with autumn dew,
And colored with the heaven's own blue,
That openest when the quiet light
Succeeds the keen and frosty night,



FIVE-FLOWERED GENTIAN.

"Thou comest not when Violets lean
O'er wandering brooks and springs unseen,
Or Columbines, in purple dressed,
Nod o'er the ground-bird's hidden nest.

"Thou waitest late and com'st alone,
When woods are bare and birds are flown,
And frosts and shortening days portend
The aged year is near his end.

"Then doth thy sweet and quiet eye
Look through its fringes to the sky,
Blue—blue—as if that sky let fall
A flower from its cœrulean wall.

"I would that thus, when I shall see
The hour of death draw near to me,
Hope, blossoming within my heart,
May look to heaven as I depart."

In this poem the color of the flower and the time of flowering are very truth-

fully noticed, and by similes of such strength and appropriateness that they cannot well be forgotten.

The Five-flowered Gentian, *G. quinqueflora*, is a plant usually about a foot in height, though sometimes becoming as much as eighteen inches, or even two feet, but the flowers are small, and here shown full size. The lobes of the corolla, it will be noticed, are very short, and open by merely straightening out, without spreading backwards; the color is a bright blue. The leaves, as shown in the engraving, are ovate-lanceolate, and acute, with bases somewhat cordate and clasping. The flowers are borne in cymose clusters from the axils of the leaves, and usually from two to five in number. The plant is an annual. A remarkable peculiarity has been noticed in this plant, which is that it frequently makes only a single pair of leaves and commences to bloom and finishes its growth when not more than two inches high, and this result is due, not from poverty of soil, for it will occur in rich soils side by side with plants of normal size and vigor. The month of September is the season for it here.

The Closed Gentian, *G. Andrewsii*, is represented by the engraving only quarter of its proper size. The plant grows from one to two feet in height, with a simple stout stem, furnished with leaves from two to four inches long, and bearing a terminal cluster of flowers varying in color from bright to pale blue, or sometimes white. The flowers are from an inch to an inch and a half in length, inflated, but never opening. The plant is



CLOSED GENTIAN.

perennial. This flower is one that has been mentioned as a conspicuous ex-

ample of self-fertilization, being so formed as to exclude the possibility of the agency of insects in this process. Nevertheless, Dr. GRAY states that he has seen a bee come out of one of the flowers; this observation, we believe, has been confirmed by others. These three species of Gentian are found from Canada on the north to the upper parts of Georgia; *G. quinqueflora* extends even to Florida, and the Fringed Gentian extends westward to Dakota. After the middle of August it is well to keep on the lookout for these plants, usually found growing among the grass by which they are more or less hidden.

DESTROYING INSECT PESTS.

A late bulletin issued by Dr. STURTEVANT, of the New York Agricultural Experiment Station, says, "We have found strong tobacco water a satisfactory remedy for the cabbage flea beetle, *Haltica striolata*. This is the spry little black bug, or flea, which is so destructive to the young plants of Cabbage, Radish and Turnip. We found that unless the tobacco water is made strong as it can be made by soaking tobacco leaves in cold water, it will not avail. We also found that by steeping the tobacco in warm water we obtained a stronger decoction.

"Our experiments with the striped bug, or cucumber beetle, *Galerucca vittata*, indicate that tobacco water is of little avail with this insect. We also tried placing corn cobs dipped in coal tar among the vines. As will appear from the results noted, this noxious substance apparently drove away the greater part of the beetles. Thus we found twenty-eight beetles on twenty-nine plants of Squash on which no preventive had been used, while on forty-two plants about which cobs dipped in the coal tar had been placed, we could find but sixteen beetles. Turpentine and kerosene oil used in the same way as the coal tar gave about parallel results. Last year, we used slaked lime with excellent results, and this season we have used ground limestone, containing Paris green at the rate of one part to one hundred by weight, with apparently complete success. Whether the poison adds to the efficacy of the ground limestone or not, we have not yet ascertained. It is necessary to

repeat the application as often as it is removed by wind or rain, until the plants are so far advanced as to be beyond the reach of the insects.

"Last season, we destroyed the nests of the Tent Caterpillar, *Clisiocampa Americana*, by rubbing them with a swab wetted in turpentine. This liquid destroys the worms as soon as it touches them, and it is usually not difficult to reach the nests by using a pole of moderate length.

"The Aphides, which appeared on the Apple trees in the spring, and which threatened the entire destruction of the crop, were destroyed by a timely rain. These insects can be killed by the application of a strong solution of tobacco, and when they appear in abundance the orchardist must endure the expense and inconvenience of sprinkling his trees if he would check their ravages. The protection of insect-eating birds should be considered a duty by all, but whatever course may be adopted, and whatever remedies may be applied, the farmer must ever remember, that in dealing with most insects, eternal vigilance is the only safety."

LILIUM WASHINGTONIANUM.

I see in the June MAGAZINE, just received, inquiries about the *Lilium Washingtonianum*. The Lily stalk comes up through the Manzanita and Madrona shrubs, and is cool at the root. The deep snow, leaves, and the shrubs cover it in winter and keep it cool in summer, and it likes the sun when in bloom. I think it should do well among shrubbery. It is never very warm where it grows, the nights are generally cool. It grows around Lake Biglar, Tahoe, and high up in the mountains, some miles from here, but I have never seen it in the foot hills on this side (eastern slope) of the Sierras. It is certainly a hardy plant, and I think just wants putting in the ground and letting alone.—MRS. R. S., *Franktown, Nev.*

TURNIP-ROOTED CELERY.

I would like to know how to keep Turnip-rooted Celery through the winter, and if it will keep well till spring, during March and April.—A. V., *Vevay, Ind.*

Take the crop from the ground before injured by frost in the fall, and remove all but the center leaves from each plant, and store in damp sand in a cool cellar; in this way the roots can be kept until spring.



CHOOSING VOCATIONS.

One pleasant, breezy morning, as Miss Bristol entered her yard from the street, she found her father at the gate looking pleased and expectant, as though her return were something to rejoice over. Thinking, perhaps, he was expecting to be entertained, as often before, by an account of whom and what she had seen with, perhaps, a mention of some incident, or the meeting with an old-time friend who had promised to call on him, it might be, she sat down by him and, taking his ear-trumpet in hand, hastened to explain to him that she had only been to see Johnny Dugan's mother, to learn, if possible, whether the patient, uncomplaining woman were really supplied with necessaries.

"I also went with Johnny," she continued, "to look at his Rhubarb, which you remember he cried over when I had shown him how he had spoiled its growth by plucking it too closely." But her father did not seem interested, and, in fact, she was distraught herself with the continued recurrence of soft, musical strains which seemed to enter the room from some place in the neighborhood. Mr. Bristol watched her curiously as she glanced out the open door and then toward the front window inquiringly. Then, resuming, she said:

"Johnny showed me their coal house, father, which had been newly filled up in some mysterious way; and he said that a barrel of flour was rolled in at the back door on the same day that the coal came. The men would not tell him who had sent them; but he said that a tall, red-haired boy was peeping in the coal house the day before ——"

"A red-haired boy?" repeated Mr. Bristol, chuckling and rubbing his hands together.

"Yes, what about him, father? I imagine it must have been one of my boys, one of my bible class, you know."

"Yes, yes; a red-headed boy with keen blue eyes, and a thin Roman nose. O yes, I know him, a gentleman, every inch of him."

"But, father, how came you to know him, and what is the matter with you, this morning, anyway?"

"I know him, because I have seen him and talked with him. But what is the matter with you, my dear? One might suppose you to be as deaf as I am and a good deal nearer blind."

"There is nothing the matter with me," answered his daughter, "only that you looked so glad to see me when I came home that I thought I would try and entertain you."

"I was already entertained," he replied; and with this remark he rose up, somewhat impatiently, and walked to another part of the room.

In the silence that ensued, her ears caught more distinctly than before a trill of sweetest melody as though coming from wind-swept chords, and turning quickly, this time to the south window, she saw its sash supported by an Æolian harp of simple, but exquisitely finished construction. She sprang toward it with an exclamation of delight, while her father drew near, and said:

"I saw the chords vibrating while we were talking, and knew there must be sounds, but your back was toward it, and you did not seem to notice."

"I did notice," she said, catching up the disc of his speaking tube, "and was half distracted with the ravishing sounds that I thought were floating in from the outside. And so the red-haired boy brought it, did he? Well, he is the very

one then whom I suspected of having already made practical use of some of the ideas gathered in our evening talks." And then the tears sprang to her eyes as she thought of the possibility of any poor words of hers being the means of influencing for good the mind of one who in the coming years would have the power to dispense cheer and blessings wherever he might be.

A few evenings after this, as Miss Bristol was greeting her young friends at the door, she gave young Stanley an extraordinary pressure of the hand, as she remarked:

"How vexatious that not a breath of air is stirring, to-night, to help entertain my company."

He flushed, and hastily answered, "Say nothing, please," and then seated himself for the evening with his back directly toward the favored window.

Soon after, Herbert Talbot indicated the tenor of his thoughts by challenging the boys present to state what vocation they thought of choosing for the future. The exchange of ideas and comparison of the merits and demerits of different callings, as biased by the varied inclinations of each, was long continued and became quite interesting. Herbert had led off at first by announcing that for the present he was seriously considering whether he had the ability to become fitted for a civil engineer, so as to compete with others, not only in the various departments of study, but also when the time should come to put such knowledge into practical application.

One of the party expected to be a merchant, like his father before him; another, whose father was a miller, said the milling business, with its wonderful improvements in machinery, was good enough for him; while Henry Harding, the quiet boy of the circle, declared his intention to become a farmer.

"A farmer!" echoed two or three at once.

"Why not?" inquired Miss Bristol.

"It's all right, of course," some one answered, "only it seems strange for a town boy."

"It is high time," she said, "that the usual rule be reversed. Too many boys, and men, too, have left the farms and crowded to the towns and cities to their ruin, in many cases.

Henry looked his thanks, and turning to the prospective miller, remarked that all the valuable machinery of modern invention is not shut up in flouring mills. "And, besides," said he, "where would you millers be were it not for the farmers?"

"And how would the farms ever be laid out were it not for surveyors?" said Herbert. "Henry, I'll survey your land for you."

"Thanks, you're too late. It's already surveyed."

Then up spoke May Talbot. "Why don't some one inquire what occupation we girls are going to take up?"

"O, that's all settled when you're born," retorted her brother.

"To wash dishes, I suppose you mean! Indeed, it's not all settled; and, Herbert Talbot, you ought to be ashamed!"

"I only meant," he answered, "that women generally are to be housekeepers."

"Not all of them have houses to keep," said Emma Stanley, "a great many of them have to find a way to keep themselves."

"Very true," said Miss Bristol, "and now, Miss May, be so good as to tell us what occupation you are thinking of."

"I would like to become a good stenographer," she said, "and be able to take down in short-hand whatever would be valuable to reproduce in print. And then I would have the choice of being private secretary, and take down from dictation if I preferred it."

"Very good. And, Miss Emma, have you any thing in mind that you would like to adopt as a vocation?"

"I have, indeed. I would like to become fitted for a first-class proof reader, so as to fill a position in a large publishing house."

"Humph!" grunted Herbert Talbot, as his favorite ceased speaking, "I don't think you are the sort of person for such a position at all."

"I don't see what you can possibly know about it," she answered, very sweetly, "I may not be as stupid as you think." And then, turning to Agnes Strong, she said, "We have not yet heard from you."

That miss then responded that she was fully bent upon establishing a Kindergarten as soon as she should have completed the necessary course of instruction; and that when once commenced

she intended to devote herself to the work for the rest of her life.

Miss Bristol remarked that in such a capacity one might make an impress for good on many minds never to be effaced, and which would be more worth considering than remuneration received; Agnes warmly assenting.

And now it was suddenly remembered that Tom Stanley had stated no plan for the future, and being pressed, he acknowledged that he had none. Miss Bristol remarked that there was time enough yet, while she secretly hoped that the prospect of a fortune at command might not quench all ambition for a useful career in life.

Then, partly to withdraw attention from himself, Tom inquired of Miss Bristol which of the vocations named during the evening she most favored. She replied that among those of the boys, that of the farmer was by far the most interesting to her, that it was not only the noblest of all other industries, the most important of all, but that all others depended upon it for existence. Then she went on to explain how even the commercial interests of the great world, by sea and land, are immediately affected by a bountiful or short yield of the staple crops of the earth. And how, in short, every interest, from the loftiest enterprise down to the schemes of the crafty speculator, depends directly or indirectly upon what comes out of the ground. Everything comes from the earth and sooner or later returns to it again. "Therefore, Henry," she concluded, "however important may seem each calling which your friends have chosen, they may always yield the palm to you."

"If you, Herbert, carry out your idea, you will find a long course of study before you. Besides mastering what one must know would belong to such a course, you will find included a microscopical knowledge of the comparative density of different qualities of iron, copper and wood. The study of French, too, is required, so that you may have the benefit of reading French works on bridge architecture and the like."

"You also, Miss Emma, will need to know enough of French and other languages to enable you to decipher illegible quotations, if you expect to rank as 'first-class' proof reader. And with your love of literature you will need to be vigilant lest the fascinations of the writer beguile you into carelessness. This reminds me to say that the editor of a prominent journal, made up of contributions, has recently published a statement to the effect that writers would be appalled if their articles were to appear in print as generally received."

But time will not tarry, and the young folks were already on their feet making ready to leave, while expressing regrets that such interesting themes could not be further discussed.—AUNT MARJORIE.

THE CLOVE TREE.

Probably every living plant has some insect or animal that subsists on it or from it; some creatures subsist on the leaves of one plant, some on another,



BRANCH AND FLOWERS OF THE CLOVE TREE.

some gnaw the bark, others the root, some consume the fruit, few make use of all parts; but man consumes and de-

stroys an immense variety of vegetables and vegetable products. Fruit, flowers, leaves, roots, buds, bark and stems of different plants are selected in turn. The clove which we use as a spice is the flower bud of a tree that is a native of the Molucca Islands.

The Clove tree, *Caryophyllus aromaticus*, of LINNÆUS, is one of the Myrtle family of plants. The tree attains a height of some forty feet, and in its native island lives to an age of from one hundred to two hundred years.

The Clove tree is now cultivated on many of the islands of the Indian Ocean, but it nowhere grows so large or lives so long as on the small group of islands where it was originally found. It has a trunk quite straight, with a light, olive-colored bark, and at about half its height the branches put out almost at right angles, and bear a heavy mass of foliage; the leaves are narrow and resemble those of the Laurel. The general appearance of the tree is quite formal, being that of almost a perfect cone, supported by a straight stem. The trees in the plantations are set in regular rows, from ten to fifteen feet apart each way. The flowers are formed in terminal clusters of a dozen or more. The flower buds are picked when fully formed and before they open, and are spread out thinly in the shade and dried without allowing rain to fall on them. They are dried partly by the natural heat of the air and partly by wood fires. When first picked they are of a reddish color, but turn brown in drying.

The fruit is a berry, and this is gathered while green and dried; the fruit is then known as Mother Cloves, and is sent to some extent to this country and Europe, but is principally used in China and other eastern countries. The ripe fruit in size and shape resembles a small olive, and is of a dark red color and contains one or two seeds. It has the Clove flavor in a mild degree, as have also the bark, the wood and the leaves, none of them, however, being equal to the buds in this respect. There is no prospect that this tree will ever be cultivated more generally than at the present time, or, at least that its cultivation will be extended to other parts of the world, since it demands climatic conditions only to be found in the region of its home.



When this year's numbers of the MAGAZINE are bound into a beautiful volume, and standing on the book-shelf, there is one little girl who will have something to be proud of when she is a grown up woman. The botanical name of the Lady's-slipper she inquires about in the letter below is the *Cypripedium spectabile*. There is an interesting description of different varieties on page 233 of last year's volume.

I have another flower from Pine Bluffs. It is a fine, large Lady's-slipper, pink and white, with beautiful light green foliage, deeply veined, flowers large and in pairs, and colors clear. I saw in last year's volume of MAGAZINE, page 172, with illustration, something about a yellow Lady's-slipper, called *Cypripedium pubescens*. Can you tell us the name of this one? There are a great many of both kinds growing at Pine Bluffs. I must tell you about the Mosses there. Besides grey and green Mosses, there are red, yellow and brown, of all shapes and sizes. Through a microscope some look as if they had seed-pods, and some look like sprays of *Smilax* and some like feathers, and some like Cedar. I send you a pair of Moccasin flowers that I have pressed, and now I must close for this time.—I. M. P., *Attica, Indiana*.

And now comes an interesting letter without address of any sort or legible post-mark. We shall hope to learn more of the writer hereafter.

I am a lame boy. I cannot walk at all. I take the *St. Nicholas*, and my aunt, in Michigan, sends me VICK'S MAGAZINE, because I like plants very much. There is a make-believe Jack-in-the-Pulpit in the *St. Nicholas*, but I have had a real one to flower in my room for two springs. My brother got it for me because I could not think what it could be like. When the flower dies he buries the root in the ground. Our preacher lives across the street and he has a very large *Caladium*, and last summer it bloomed and he cut the flower off and brought it to me, and don't you think it was a real, great big Jack-in-the-Pulpit! I was so surprised. It lived two or three days in a glass of water, and I named it Henry Ward Beecher, (!) for the queer thought I had about it seemed like a little sermon every day. I don't believe I can think the same things that boys do who run about in the world all their lives. Good bye.

And you need not want to think the same things they do, dear boy. No doubt your affliction is sanctified to you for good, and for the good of those around you, a blessing in disguise.

WM. SPECK, of Jamaica, W. I., promised in April that we should hear of his success with Roses, later on. We are ready and waiting.



HASTY NOTES ON TREES AND SHRUBS OF NORTHERN EUROPE AND ASIA: By CHARLES GIBB, Abbotsford, Quebec.

This is an advance paper from the Report of 1883, of the Montreal Horticultural and Fruit Growers' Association of Quebec. The author, who in company with Prof. I. L. BUDD, of Iowa, made a tour, last season, in Russia and Siberia, here gives some interesting notes on what he there saw. We should judge from this paper we shall yet be able to introduce into this country some valuable species and varieties of trees and shrubs from northern Russia and Siberia that will be hardy here, although they have already proved tender when brought from Central Europe.

Of the Laburnum, Cytisus, he says: "Here, again, are some hardy forms, although the same species from Scotland will not endure our cold winters. In the Botanic Gardens at Munich, we found *Alpinus* growing to a height of over thirty-five feet, with a dozen trunks from five to twelve inches in diameter. In the severe climate of Orel, in Central Russia, we find a tree of *Alpinus* which seemed quite hardy. The northern nurseries all grow *Cytisus*, and these hardy varieties are well worth looking up."

Our space permits us to make but few quotations. "The *Rhododendrons* extend from the Himalayas north to the Altai, and east to Kamschatka, and are found in some cold regions. *R. Dahuricum* is an evergreen variety with purple blossom, quite hardy at St. Petersburg. It does well on limestone soil. *R. parviflorum*, a smaller and more compact shrub with a small blossom; grows well on peat or without it, and is very hardy far to the north.

"*Azalea mollis* has a large salmon-colored flower, a variety brought by Mr. MAXINOWITCH from high altitudes in Japan. It has proved quite hardy at St. Petersburg. I see that ELLWANGER & BARRY, of Rochester, N. Y., speak of the great beauty of *A. mollis*, but say it is only half-hardy and needs protection. What difference in hardiness there is in the offspring of plants of different elevations.

"The grey silk foliage of *Hippophae* makes them very attractive. Are they hardy? I asked Dr. REGEL. 'I received them from Central Europe and they proved tender; I then procured seed from Siberia, botanically the same, and they are quite hardy; such was Dr. REGEL's reply, the same old story, his experience and mine, as far as I may be said to have any.'

Schwerdler's Maple is noticed as quite hardy at Riga. The Tartarian Maple "is a native near Moscow, and may be seen in the Botanic Gardens and parks in the severest climates we visited. It is an 'entire leaved' Maple, grows into a large bush, and is decidedly ornamental. It is a pity that the trees of it for sale in the States are not to be relied upon for hardiness. We must get northern stock."

From the above the nature of these notes will be understood. It is hoped that the Montreal Horticultural Society will introduce and make trial of all the good and promising trees and shrubs of northern and eastern Europe, procuring seeds and plants from the most severe climates where they thrive, and not as has already been done from France and Germany. Prof. BUDD, of the State Agricultural Col-

lege, at Ames, Iowa, is now engaged in this work, as well as testing varieties of fruits from the same countries, and to him we must look, in the future, for reliable information on these subjects.

MEADOWS AND PASTURES.—A compendium of the Grasses of Tennessee, prepared expressly for the farmers of Tennessee, but adapted to the whole country, by J. B. KILLBREW, A. M., Ph. D., published by the Bureau of Agriculture, Statistics and Mines, for the State of Tennessee. This manual commends itself to the reader by its fund of facts, experience and practical statements, as well as its entire reliability. A section devoted to Chinese Sugar Cane, or Sorghum, gives the principal facts in regard to the culture of the crop and its conversion into sugar.

REPORT OF THE FRUIT GROWERS' ASSOCIATION and Entomological Society of Ontario. A book of 365 pages, containing a number of valuable papers on the cultivation of all our hardy Fruits, Ornamental Trees, on Forestry and on Insects injurious to vegetation, giving the latest information in relation to these subjects, thus making it a most creditable production for the societies, and of great value to horticulturists.

REPORT OF THE MICHIGAN HORTICULTURAL SOCIETY.—A fine volume of 450 pages, filled with interesting reports on many horticultural subjects. A valuable feature of the report is the Secretary's portfolio. This consists of horticultural notes made during the year on topics of interest, and extracts from a great variety of sources. Secretary GARFIELD should have the generous encouragement and assistance of Michigan cultivators.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY for the year 1882, part second. As usual, this report of the model Horticultural Society of the country is interesting and satisfactory, and gives encouragement that this industry may eventually flourish as well and be as well represented all over the land.

KANSAS; Its Resources and Capabilities. Information relating to vacant lands, Agriculture, Horticulture and Live Stock, together with other statements and statistics, Prepared by the State Board of Agriculture, WM. SIMS, Secretary, Topeka, Kansas.

THE SOUTHERN WORLD, of Atlanta, Ga., now in the second year of its existence, is making good its claims for support by the agricultural community of the South by the excellence and variety of its contents. It is well edited, has a good corps of contributors, and an energetic publisher; issued twice a month. Price one dollar a year.

BEGONIA REX.

Does a Begonia Rex need sun or shade, and what kind of soil? The one you sent me has lost its bright colors; it sends up three leaves at a time, all small, and don't grow nicely. I have it in a six-inch pot, and in new soil from the woods.—J. D., Myers, Mo.

A place slightly shaded is well adapted to Begonia Rex and other similar varieties. It is best not to wet the leaves when watering the plant, as it tends to discolor them; they can be kept clean by occasionally dusting them with a soft brush.



DIGITALIS OR FOXGLOVE